

EDITORIAL INDEX—PAGE 29

# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

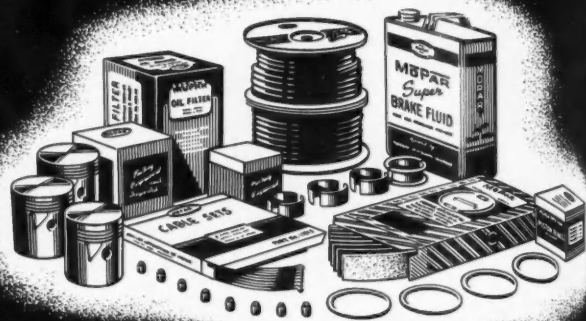
DECEMBER 1948



*Season's Best*

REO MOTORS, INC.  
LANSING 20, MICHIGAN

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with which is combined Operation & Maintenance

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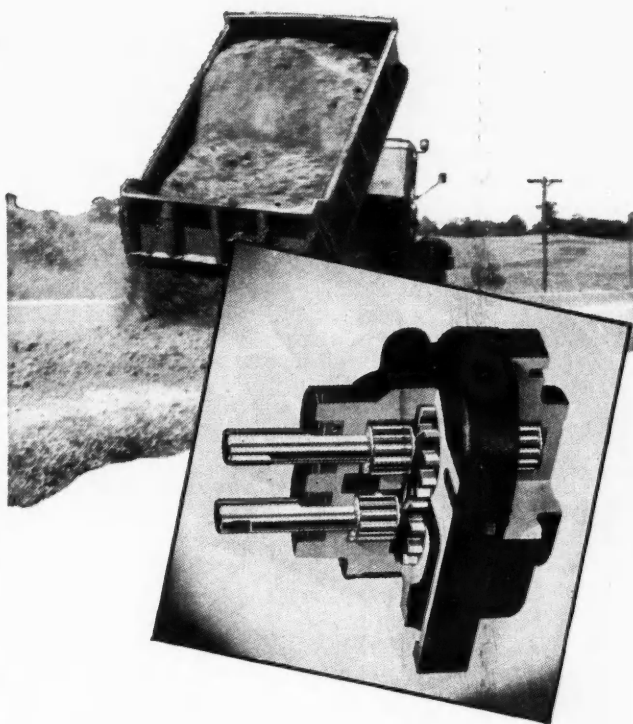
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# REO T

# Choice of

**ROADEO RESULTS PROVE THAT  
YEAR AFTER YEAR, MORE DRIVERS WIN  
WITH REO THAN WITH ANY OTHER TRUCK!**



The American Trucking Associations' TRUCK ROADEOS are the world's toughest contests of driving skill. Every year champion drivers—winners of all State Roadeos—take part in gruelling National Roadeo competition to find the nation's best and safest truck drivers.

Contestants in both the State and National Roadeos have free choice of any make of truck—and six out of eight national champions, in all divisions, for the last three years, have picked Reo Trucks.

This year, two out of three chose a Reo! Why? Because champion drivers know the advantage of Reo's shorter wheelbase.

This wheelbase is inches shorter than the wheelbase

of comparable models of other makes of trucks. It is a feature of the exclusive Reo "More-Load" design, which gives Reo the same payload capacity, yet much greater maneuverability—a shorter turning radius for easier backing, turning, parking.

On the highway or narrow city streets, in everyday driving or on the Roadeo course, Reo's maneuverability, smooth operation, responsiveness, and exceptional visibility show any driver at his best.

Yes, the Roadeo's designed to test the drivers—but it tests the trucks they drive, too. And for the Roadeo or open road, the champions' choice is Reo!



REO MOTORS, INC., LANSING 20, MICH.

## *In the Past 3 Years, Reo Drivers Won*

- ★ **6 OUT OF 8 NATIONAL CHAMPIONSHIPS!**
- ★ **5 OUT OF 8 NATIONAL 2nd PLACES!**
- ★ **58 OUT OF 135 STATE CHAMPIONSHIPS!**

# TRUCKS ARE THE *Champions!*



## **In 1948, Reo drivers win 2 out of 3 Championships!**

For the second straight year, Chester Smith proved himself master of the largest over-the-highway trucks. Chet covered the rugged Rodeo course in the truck of his choice, a huge Reo Truck with Full Trailer, to win. He has a 14-year accident-free record with Reliable Transportation Co., Los Angeles.

Thomas Bennane, second Champion in two years to win the Straight Truck crown in a Reo, swung skillfully around the tricky A.T.A. Rodeo course to score 385.62 of a possible 400 points. He won over drivers in almost every make of truck. Tom drives for Trucking Incorporated, Detroit.

**YEAR AFTER YEAR,  
MORE DRIVERS WIN  
WITH REO THAN  
WITH ANY OTHER TRUCK!**

**REO**  
TRUCKS AND BUSES





**1. To help solve this plight before Christmas—**

Shoppers need a lift with those gifts.

Store delivery? A welcome idea for shoppers. An opportunity for stores—especially those with International-Metro Trucks—the extra-capacity, multi-stop, all-steel, light delivery trucks that speed store deliveries.



**2. To keep visions of sugar plums dancing—**

A child spots a helper of Donder, Blitzen & Co., and there's Christmas in the air!

The child doesn't care that International Trucks are the "Standard of the highway." But for the International-Metro owner, that spells more deliveries, lower costs.



**3. To make you proud of your family tree—**

It's surrounded by gifts that were chosen with love, and delivered safely and on time for the big day!

At such a time you don't think about "more payload space for peak-load days." But that's something to remember about Internationals when you're buying trucks.

## These six cylinders work harder in reindeer season...



**4. To build good will toward these men—**

Prompt deliveries during the Christmas rush, or any rush, build good will for store owners.

That's why so many department stores make International-Metro Trucks the backbone of their delivery fleets. They are specialized trucks designed to do a specialized job well.

**5. And to emphasize, again, why this truck is a year 'round Santa—**

Peak seasons in any industry spotlight efficient, modern truck delivery. That's why the International-Metro is a favorite among merchants already taking advantage of its capacity for efficient multi-stop delivery.

That's also why International Trucks are doing a big job in every

industry. Job specialization is typical of International Trucks. (Gross weight ratings range from 4,400 to 90,000 pounds.) See your International Dealer or Branch and take advantage of specialized International Trucks for specialized jobs.

P. S. And a Merry Christmas to you!



Tune in James Melton  
and "Harvest of Stars,"  
CBS, Wednesday evenings



# INTERNATIONAL TRUCKS

MOTOR TRUCK DIVISION • INTERNATIONAL HARVESTER COMPANY • CHICAGO



# Commercial Car Journal's Editorial Index for 1948



A comprehensive listing of all feature articles, free publications, shop hints published during the year, indexed alphabetically according to subject matter and cross indexed for convenient locating of material.

This handy guide will prove valuable to the fleetman in selecting tune-up data, technical articles, new equipment descriptions, operating stories, shop layout plans, and maintenance information of a wide variety.

A glance at the index will show the operator where he can obtain information for better control, operation and service of his vehicle. *First number following listing indicates month of publication; second, is page.*

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### Check Your Knowledge

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What can you do to GET and KEEP safe drivers? Experts give some practical tips on selection tests and training methods . . . . . P. 68

See the new Ford forward control chassis with detailed specifications . . . . . P. 76

### Coordinating the Terminal Shop with GHQ

by PETE MELSTEN, Inland Motor Freight, Portland, Ore.

A TERMINAL shop foreman tells exactly the step he takes to keep his headquarters shop and accounting department posted on repairs made in his and other outlying shops. It takes seven forms to do it, but all are highly simplified and together they tell the complete story of every move. An interesting feature is the Monthly Service Card which stays with the truck and tells at a glance just where the truck stands with regard to lubrication—engine oil, transmission, rear axle, etc. For full details, see page 58.

### "Diesel Patrol"

by SPENCER CRUMP

LOS ANGELES is all out to stop its "Smog" headache—smoke plus fog. Although diesel trucks are not the biggest offenders, they do contribute to "smog" and the Air Pollution Control is out to stop them. Here's the story of how the "diesel patrol" works; how it measures density of smoke and what it does to offenders. Most troubles are settled outside of court through the offices of a unique panel composed of union, trucking and government officials. But there is authority to prosecute if necessary. The article is of particular benefit to outsiders who may be hauling for the first time into the LA area. See page 36.

### Scattered Fleet Control Systems

by R. O. SHUMACHER, Western Union Telegraph Co.

"VERY little space in motor vehicle publications and little time in motor vehicle group discussions has been given to the widely scattered fleet." So begins the author of this article who then proceeds to give a full account of the efficient scattered fleet control system which he has developed.

Among other things, he describes an interesting periodic recap of fleet vehicles arranged by capacities and in order of cumulative cost per mile, the lowest at the top, the highest at the bottom. By sending copies of this report to all drivers and supervisors, each man knows where he stands and what he ought to do about it. See page 62.

### Do You Know the Answers?

Will allocations and price controls be invoked with a new congress? See Washington Runaround . . . . . P. 82

What can truckers do to thwart the "Cold War" waged against motor trucks by newspapers, and how can they improve relations with the motoring public? . . . . . P. 39

Will military truck orders bring about material shortages? What has the military planned for new motor trucks? P. 78

### Refinishing Parts Affected by Rot and Rust

by A. W. GREENE, Managing Editor, CCJ

THIS article concludes a two-part analysis of methods employed by the nation's top fleets in preparing vehicles for refinishing. Part I, published last month, described the practices of these fleets in cleaning prior to painting, removing old finish, and making basic repairs.

This part shows the methods used in repairing and protecting steel aluminum, wood and canvas surfaces from deterioration, and lists the types of tools and equipment used in the preparation of vehicles for painting.

### Selecting Air Compressors

by M. K. SIMKINS, Commercial Car Journal

This seventh of a series of articles on Precision Tools for the Modern Shop provides the fleetman with practical suggestions for selecting the correct size, type or style unit he requires. Formulas, data and a discussion of specifications of various compressor installations will show what to look for in air compressors. The illustrations of nine popular makes will be helpful in deciding upon a new machine. See page 44.

### Factory Service Tips

Here are the latest factory recommendations for servicing Auto-car, Chevrolet, Diamond T, Federal, International Harvester, Ford and FWD trucks. Notes this month cover such points as valve adjustment, brake adjustment, Hydrovac lubrication, valve spring installation, wheel bearing lubrication and scores of other maintenance helps. See page 40.

### The How and Why of Safety

HERE is the third installment in the complete safety program series prepared for COMMERCIAL CAR JOURNAL by the National Council of Private Motor Truck Owners. This installment deals with Driver Selection, Training and Supervision. Previous installments have covered Management Responsibility and Driver Responsibility. Future installments will cover all aspects of a complete fleet safety program. Better begin fast to save your copies. See page 49.

*A Merry Christmas and a Happy New Year*

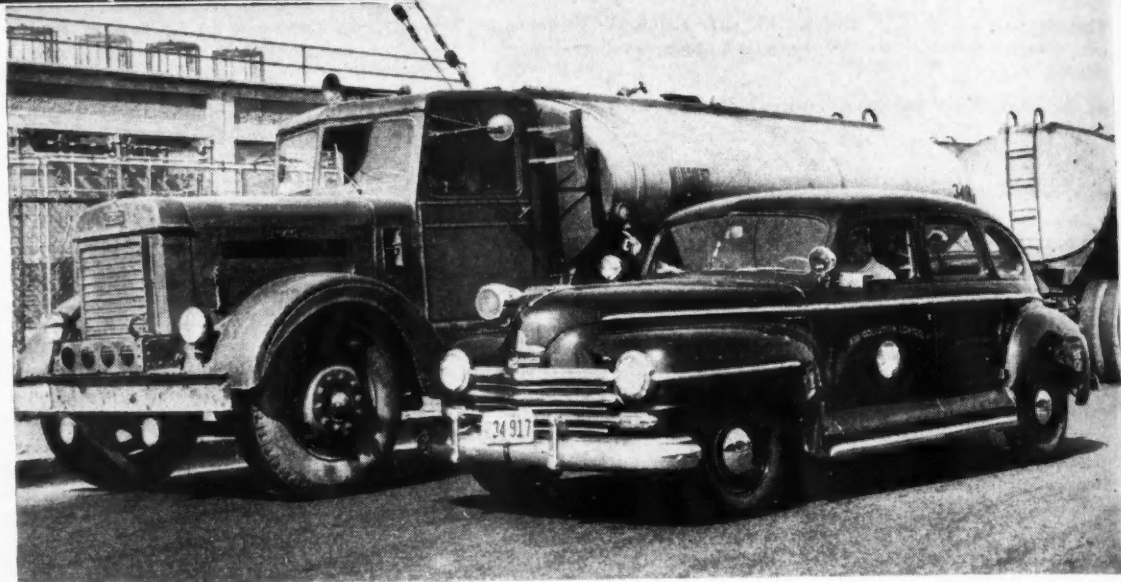


**LEFT** Taking different routes each day, the diesel patrol eyes a smoke belcher. If smoke lasts three minutes or more, it's...

**BELOW** "Pull over!" Patrol cars are black but clearly labelled. First offenders get a "notice;" repeaters a "citation"

**LOWER LEFT** Patrolman Irving Levitan gives smoker a Ringelman test. Partner Edmund Stampfli will confirm reading

**LOWER RIGHT** John Mills, senior air pollution control inspector, points to Los Angeles routes most frequented by diesels



## "Diesel Patrol" Pulls In



**HANK EVANS** couldn't figure it out. He sat behind the wheel of the big diesel freighter rolling down the "Ridgeroute," mountain pass of U. S. Highway 99 leading into Los Angeles. It was nearly the end of the run, and all had gone well. But that patrol car had been tagging him for the past five miles.

Hank had signaled at that last turn, and the license plates were current. He wasn't speeding—or doing anything else he could think of which would warrant a patrol car.

Then, through the side mirror, he saw the car pull from the rear. He heard the whine of a siren, and the red spotlight splashed into the cab of the Diesel.

Hank Evans glanced at the patrol car as he pulled to a stop. The officers weren't in uniform. In fact, Hank didn't think they even looked like officers, even though the vehicle had the markings of an official Los Angeles County patrol car. He examined the two men quizzically as they hopped from the automobile and approached the truck.

"Did you know that you were belching smoke?" asked one of the officers.

That was a new one to Hank

Evans, as it is to many truckers making their first hauls into the Los Angeles area with an engine which isn't quite burning all of the fuel.

Sometimes it is a \$500 question, for those who violate stiff anti-"Smog" laws in Los Angeles County are liable for fines ranging up to that amount.

Hank Evans—like hundreds of other drivers and trucking companies—had just encountered one of the two patrol cars operating under the jurisdiction of the Los Angeles County Air Pollution Control District.

Truckers know the cars as the "Diesel Patrol."

The strict regulations against diesel trucks which emit visible fumes are an outgrowth of the Los Angeles area's "Smog" problem. Other industries have felt the law to a more or less degree, but diesel truckers have particularly noticed it because of the large number of individual engines which they are operating. Most firms need only to watch one location for violations because their plants are under one roof. Truckers have their equipment spread out over several hundred square miles.

The whole thing has resulted in a

new code of maintenance for diesel-using trucking companies in Southern California, along with a fine degree of cooperation between the trucking industry, governmental officials, and the drivers' unions.

Here's how it works.

If Hank Evans' truck was spouting black—or even gray—diesel fumes, chances are he would have received a formal "Notice" of the violation from the two patrolmen. That would have been only the first in a possibly long chain of events, leading ultimately to a unique panel composed of representatives from several phases of the trucking industry and of governmental officials.

But Hank Evans or anyone else who faces these regulations would like to know why such measures were evolved. First, let's consider the word that the law is attempting to eradicate from the vocabulary of Los Angeles.

**Smog = Smoke + Fog**

**THE** word "Smog" comes from two sources, SMOke and FOg. "Smog" has reduced visibility, hinders health, and has even cut down on the amount of Los Angeles' famous sunshine which reaches earth. The Air Pollution Control District, with its "Diesel Patrol" and other lookouts for violators, rapidly is bringing the condition under control.

Smoke is visible only because of microscopic carbon particles which float in the air. Smoke and fumes from industrial plants and machines rise into the air because they are warmer than the surrounding air. In a normal atmosphere, smoke and fumes rise to 10,000 or 15,000 ft, and whiff—they are as cool as the surrounding air and are dissipated.

Here in Los Angeles the smoke and fumes rise until they hit an inversion layer of air at approximately 3000 ft. The air above this height is warmer than the smoke-laden air; therefore the smoke, being heavier, cannot rise above the ceiling. The carbon particles form nuclei and cling to the particles of water which compose the fog.

The result is "Smog."

The nuisance has a brown tinge which blots out the sun. In the higher altitudes of Los Angeles,

(TURN TO NEXT PAGE, PLEASE)

## Smoke-belching Trucks

**To help lift Los Angeles SMOG, well-trained**

**inspectors bring diesel offenders before**

**unique panel of union, trucking and govern-**

**ment officials; and, if necessary, the courts**

**by SPENCER CRUMP**



## Continued from page 37

Above this temperature inversion layer the air is crystal clear, with visibility ranging from 50 to 100 miles. This layer extends as level as a ceiling across the vast Los Angeles area.

"Well," Hank Evans or some other irate diesel trucker might ask at this point, "if the fumes can't escape by going directly up, why can't they get out through the side?"

So the only answer was to eliminate the causes of "Smog" if the nuisance was to be ended.

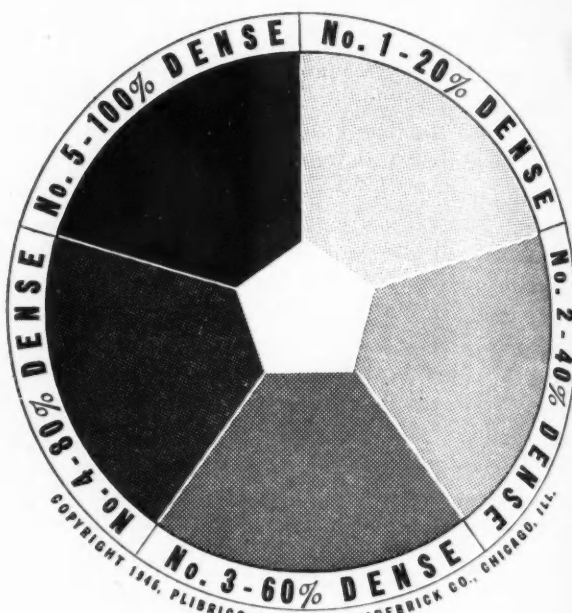
Scientists and engineers found that nearly all types of smoke are "Smog" producers. Black smoke indicates insufficient combustion, resulting in

(TURN TO PAGE 124, PLEASE)

**FIG. 3. Inspectors report is used when truck smokes, but not for long enough period to violate code. Driver is orally warned of impending trouble**

### SMOKE CHART.

**Carefully prepared cut, furnished by copyright owners, shows type of screen used as legal basis for citing offenders. White area in center is open hole through which inspector compares smoke with screen**

[illegible]

**FIG. 1. Notice, issued to first offenders, warns of "smog" code violation**

Air Pollution Control District—Los Angeles County  
 8201 SANTA FE AVE., LOS ANGELES 11, CALIFORNIA

Edward Hoe  
 500 Main Street  
 San Francisco, California

(SAMPLE)

On August 17, 1968, your automotive vehicle,  
 95 COM LP 0000 Cab No. 1, was observed emitting  
 smoke in excess of that permitted by Section 24242 of Chapter 2  
 Division 29 of the State Health and Safety Code as indicated by the  
 attached notice.

You are directed to fill out completely and accurately one copy  
 of this questionnaire and to return it to this District within ten (10)  
 days of the date of the notice. Failure to do so may result in the  
 issuance of a criminal complaint and warrant for arrest.

- Rated \_\_\_\_\_
- Cetane No. \_\_\_\_\_
- Fuel pump \_\_\_\_\_  
H.P. \_\_\_\_\_ of fuel used setting \_\_\_\_\_
- Speedometer reading or \_\_\_\_\_  
date of last overhaul \_\_\_\_\_
- Present \_\_\_\_\_  
speedometer reading \_\_\_\_\_
- What in your opinion \_\_\_\_\_  
was cause of smoke? \_\_\_\_\_
- What steps have been or will be \_\_\_\_\_  
taken to correct the condition? \_\_\_\_\_
- Defe work was or \_\_\_\_\_  
will be completed \_\_\_\_\_
- This vehicle was checked with a dynamometer \_\_\_\_\_  
and a copy of the "Power Test Report" is \_\_\_\_\_  
included herewith. (See pp. 10, 11)
- Does this vehicle now operate in compliance with \_\_\_\_\_  
the provisions of the State Health and Safety Code? \_\_\_\_\_ (See pp. 10, 11)

Signed \_\_\_\_\_

LOUIS C. McCABE  
 District Engineer  
 Harry E. Hunter  
 Chief Inspector

(Printed Name)

No. A 176

(Machine Stamp)

**FIG. 2. Owners who receive "notice" must comply with mailed questionnaire**

AIR POLLUTION CONTROL DISTRICT—LOS ANGELES COUNTY  
5201 SANTA FE AVENUE LOS ANGELES 11, CALIFORNIA

(SAMPLE) INSPECTOR'S REPORT

DATE AUG. 17, 1948

NAME JOHN DOE TRUCKING CO. FILE NO. \_\_\_\_\_

ADDRESS 1000 4<sup>th</sup> ST. CITY LOS ANGELES

CONVERSATION WITH RICHARD SMITH TITLE DRIVER

FINDINGS: 222 BROWN ST.  
LOS ANGELES, CALIF.  
Chauffeur's License #11111

TRUCK EMITTED #4 SMOKE FOR  
2 MINUTES - 10:10 TO 10:12 AM ON  
BLACK ST. BETWEEN 55TH & 68TH  
AVENUES.

TIME 10:10 - 10:20 AM



## The OVERLOAD

### The 'Cold War' Trucks and How to Keep It From Getting 'Hot' . . . Pilot Test Rumors

JUDGING by the front-page, large-type and gruesomely illustrated treatment that newspapers all over the country are giving to accidents involving trucks and to arrests for overweight, something in the nature of a "cold war" is being waged against motor trucks.

\* \* \*

In many instances truck operators have only themselves to blame. In others they are the victims of circumstance and of the newspaper tendency to play up the sensational in a way that reflects unfairly on the motor truck. A child runs into a passing truck and is killed and it becomes a "Truck Kills Child" accident. A motorist loses control of his car, ploughs into a truck coming his way, all occupants of the car are killed and the newspapers blazon it as a "Five Killed in Truck Crash" accident. No matter whose fault the accident may be, invariably it is the truck that gets the headline and, by emphasis, the blame.

\* \* \*

Unquestionably newspaper headlines are unfair to motor trucks. With some newspapers, especially those in railroad centers, it is a case of malice prepense—deliberate, premeditated intent to do harm. But with newspapers in general it cannot honestly be said that there is a concerted effort to be unfair to motor trucks or to do them an injury. Trucks and truck operators are merely the victims of a newspaper's need for headline brevity and the disposition to sensationalize. It is a "cold war," with only here and there some heat.

\* \* \*

But with 44 state legislatures about to go into regular sessions, and the hazardous winter months ready to provide the enemy with explosive ammunition, it can become a "hot war" overnight. Because the legislatures will have under consideration a variety of measures affecting motor trucks, and because a series of sensationalized truck incidents could tip the scales to defeat

by **GEORGE T. HOOK**

Editor

favorable legislation and promote detrimental measures, truck operators need to pursue a course that will keep trucks out of the headlines and build character with the public and their elected representatives in the legislatures. In the months ahead, as never before, they should put on a campaign of highway courtesy, of greater consideration for the motoring public and of strict compliance with motor vehicle regulations.

\* \* \*

Lest this be misinterpreted as an appeal for hypocrisy, let it be understood that this is not a suggestion for temporary measures to be abandoned as soon as certain ends are gained. The course advocated is imperative in the next six or seven months; it should be permanent because it is the only way to good relations with the public. What can truck operators—local and over-the-road, private and for-hire—do to take the heat off themselves and promote their welfare? Here are a few ideas:

\* \* \*

1. Put on a campaign with drivers to observe courteous, safe, law-abiding practices. Over-the-road drivers should not tailgate, should not straddle lanes, should not speed down grades. They should permit passing on upgrades and downgrades, and should keep the legal distance behind the truck ahead. Consistent with their schedules they should help motorists in distress. Local drivers should avoid all forms of illegal parking, should drive narrow streets with extra caution, and watch out for school children.

\* \* \*

2. Put on highway patrols—either cooperatively or as individual operators—to make sure that drivers are observing the practices in which they have been instructed. Maintain equipment in good appearance and safe-driving condition. Encourage the pub-

lic to report bad practices of drivers. (One encouragement would be to put the company name, street and city address in legible letters on the back of the truck where motorists could see and note them conveniently.) Get the cooperation of unions. Observe weight limits.

\* \* \*

Then, while guarding their rear and flanks in this laudable fashion, truck operators can attack on the legislative front with more likelihood of success. And here, too, they would be well advised to conduct their campaign in a way that will make friends with the public and influence legislators. They should request increased sizes and weights that are economically justifiable. They should support the request with evidence that it is not just a selfish whim but of benefit to the public and the economic interests of the state.

\* \* \*

They can also gain public and legislative favor by showing an honest desire to have the requested sizes and weights strictly enforced. Too many operators seem to consider the legal weight limit a floor rather than a ceiling. These are the operators whose scandalous overweights are reflecting on the integrity of truck operators as a whole. They should be curbed by means of overweight penalties which will be progressively punitive and so severely felt in the pocketbook as to discourage violation.

\* \* \*

But above all, in the crucial months ahead, every truck should be driven as if the car ahead or the car behind contained the Governor of the state and the assemblyman and senator whose votes could determine the fate of every favorable and unfavorable measure affecting motor trucks.

\* \* \*

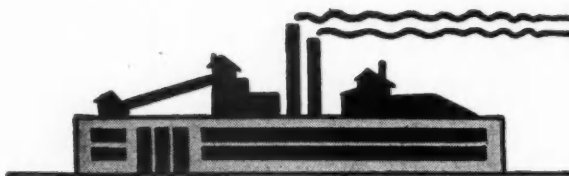
Too much all-around good is expected of the studies being made by the Highway Research Board to let any one of them fall under the

(TURN TO PAGE 150, PLEASE)

# FACTORY SERVICE

# NEWS

Briefed for Fleet



## FROM FACTORY TO YOU

Here are the latest notes on truck service just received from manufacturers. Fleetmen will want to keep abreast of these developments and take advantage of the unit changes, new kits for field installations, overhaul tips, etc., outlined on these pages.

### Autocar

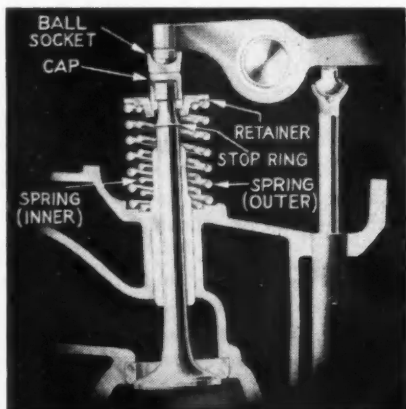
#### Valve Adjustment

THE Continental engine Models R-6572 and R-6602 use exhaust valves of sodium-cooled type equipped with the Roto-Valve. New Roto-Valve parts are interchangeable and are manufactured to have proper rotator clearance (.002 to .005 in.) built into the assembly. Valve tappet clearances should be set as per manufacturer's recommendations.

To check new and used Roto-Valve clearances place a .010-in. shim in the tip cup and check clearance between the locks and cup. This should be .005 to .008 in. If greater than .008, remove metal from valve tip. If less than .005 remove metal from open end of cup.

When removing metal for adjustment, be certain it is removed uniformly and valve locks are installed in the original positions to prevent cocking of the spring cap. Once the parts are fitted, they are no longer interchangeable.

After fitting the installation, rotate the engine until each valve is lifted from its seat. The valve must be free to rotate by light finger pressure when in the "valve open" position.



The intake valves are of conventional type with 30-deg seats machined directly in the head. The valve seat of both intake and exhaust valves must be at right angles to the stems within .002 in. taken by revolving indicator. When regrounding intake valves, use a 30-

deg angle on both valves and seats. Exhaust valves should be ground with a 44-deg angle on valves and a 45-deg angle on seat inserts.

Inserts may be reground or replaced. Replacement inserts are furnished only in .10 in. oversize.

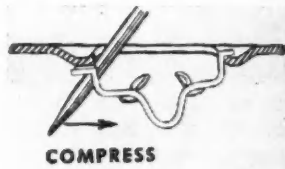
Valve clearance is sufficient at .024 in. with valves cold. When engine is hot, final valve clearance should be .020.

### Chevrolet

#### Side Pan Retainers

IF the lock stud retainer comes out of the toe-pan and engine side pans of 1947-1948 COE trucks, it is possibly due to improper assembly of this retainer. If the retainer is pushed into the assembled position with a screwdriver, it tends to collapse, leaving it loose in the slots.

To install the retainer properly, slide one end of retaining tab into one recess and with the aid of an awl compress retainer until the other retaining tap can be slipped into position. Care should be taken not to deform retainer when compressing.



### Front Suspension

THE front axle "I" beam used on the 1948 3/4 and 1 ton Forward Control Units is of the same type that is used on the 1947-48 2-Ton Conventional Trucks. Therefore, with a few exceptions, the service instructions (relating to 2 Ton Models as outlined in Section 3—Front Suspension—of the 1947 Truck Shop Manual apply when performing minor or major service operations on the front axle assembly.

The exceptions are as follows:

1. The removal and replacement of the brake drum is accomplished by removing and replacing the two slotted head screws retaining the brake drum to the hub.
2. The Front Wheel Alignment specifications are:

|        | 3/4 Ton       | 1 Ton         |
|--------|---------------|---------------|
| Camber | 1°            | 1°            |
| Caster | 3 1/4° ± 1/2° | 2 1/4° ± 1/2° |
| Toe-In | 1/16" to 1/4" | 1/16" to 1/4" |
| K.P.I. | 7°10' ± 1°    | 7°10' ± 1°    |

### Wiper Control Rod

THE factory reports complaints from fleetmen that the windshield wiper control rod which connects the remote control button to the wiper motor arm on the 1947 trucks has been falling off. This condition can be overcome by reversing



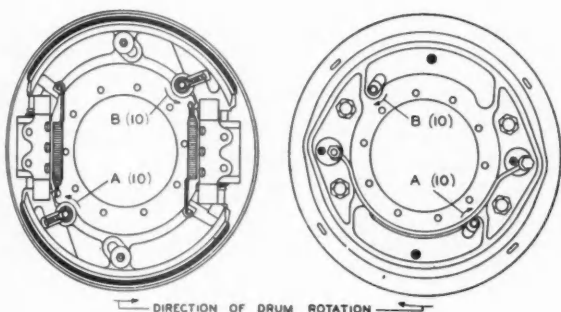
## Fleets from MANUFACTURERS' BULLETINS

the control rod. This is done in the field by removing the pointed rubber lock button on the motor end of the rod, slipping the rod out of the rubber grommet in the control lever arm and reinserting the control arm end in through the top of the rubber grommet.

### Diamond T

#### Hi-Tork Brake Adjustment

THE self-centering hi-tork brake is a "floating shoe" type employing two identical shoes mounted on the backing plate with their toe ends diagonally opposite each other. Two wheel cylinders are used, which act on the toe and heel ends of both shoes so that hydraulic force is applied to each end of each shoe.



The adjusting mechanism is held in the toe end of each shoe. The adjusting worm screw works on a worm wheel which in turn shifts the position of the take-up screws.

Adjustment is required periodically to compensate for normal lining wear and after the brakes are relined. Generally, adjustment is necessary when the pedal drops to within 2 in. of the floor board on hard application.

Adjustment should be made only when the brake drums are cool. Check wheel bearing adjustment before adjusting brakes.

To adjust, remove the adjusting slot covers and insert  $\frac{3}{8}$ -in. allen wrench into one of the adjustment slots far enough to engage the shoe adjusting worm. Then rotate the wrench in the direction of forward wheel rotation until the lining drags on the drum. Back off the adjustment until the wheel just rotates freely and then back up the worm one more turn for working clearance.

This brake is bled in the same manner as conventional brakes. However, it is important to bleed the lower cylinder first.

### Federal Shaft End Play

A FEW complaints of noise and repeat distributor and cap failures on JX Series Hercules Engines have been received. This should correct the trouble:

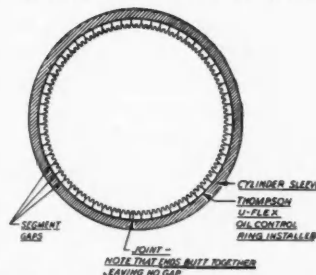
Thrust screws to control end play of the camshaft, idler gear shaft and water pump shafts are located in the timing case cover. Each screw is equipped with a lock nut to hold the screw in adjusted position. Permissible end play of these shafts is .002 in. to .004 in. To adjust—*a.* Loosen thrust screw lock nut  $\frac{1}{2}$  turn. *b.* Position wrench on thrust screw and screw in until it just snugly contacts the shaft, then back out the screw  $\frac{1}{8}$  turn. *c.* Holding the thrust screw in this adjusted position, tighten the lock nut. Excessive end play of the shafts will cause engine noise and excessive end play of the water pump shaft will cause water pump seal and distributor failures. End play adjustments should be checked on the new truck inspection and at periodic intervals thereafter.

On engines on which low mileage distributor and cap failures are experienced, in addition to checking end play of the water pump shaft which drives the distributor, end play of the distributor shaft should also be checked. End play of the distributor shaft is controlled by shims between the drive gear and housing and should be within .004 in. to .010 in. limits, with the low limit preferred.

### International Harvester Oil Control Ring

THE FAG, FAC and BLD engines now are supplied with the Thompson Products Co. U-Flex type oil-control ring. This ring is of flexible, one-piece construction. It has no gap at the joint of the ring ends when installed on the piston and in the cylinder bore.

The many small gaps between the segments serve the same purpose as the one large gap of the conventional ring. With the ring ends together, and the ring compressed into the cylinder bore, the segment gaps each decrease from .007 and .010 to approximately .0005 to .001 in., thus having a combined gap equivalent of from .030 to .090 in. U-Flex rings are available in standard and .20 oversize for BLD engines. Only standard sizes are available for FAG and FAC.



(TURN TO NEXT PAGE, PLEASE)

## Factory Service News

IHC—Continued

### Hydrovac Lubrication

**SINGLE-PISTON** Hydrovacs should be lubricated every 6 months or 10,000 miles. It is of special importance to lubricate them just before cold weather since cold temperatures may cause the old lubricant to gum up and impede vacuum piston movement.

The unit should be lubricated with the Hydrovac mounted on the vehicle, with the engine stopped and the brakes released.

Those equipped with a pipe plug in the cylinder shell should be lubricated by removing the plug and filling with Bendix Vacuum Cylinder Oil to the level of the bottom of the hole.

Those not provided with plugs are lubricated by sliding the hose which connects the control valve and vacuum shell towards the control valve and injecting 2 oz. of B-K vacuum cylinder oil into the tube which is fastened to the shell.

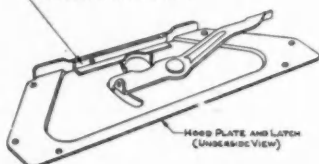
Be sure the lubricant is injected well down the curve of the tube and that the oil does not remain in the tube as it may transfer to the control valve and cause damage to the hydraulic rubber parts.

Do not lubricate a Hydrovac until it has been installed on the vehicle as the handling of the unit may cause the oil to flow into the hydraulic portion of the unit and ruin the rubber parts.

### Hood Latch Plate Reinforcement

IF the hood latch bolt does not properly index with its bore in the hood latch plate upon closing of the hood, the hood latch bolt will strike the latch plate causing it to crack or break out at the front end.

REINFORCEMENT  
FOR THE LATCH BOLT (7/16" THICK)  
WELD SECURELY TO HOOD PLATE



the K-1 to K-5 and KB-1 to KB-5 series chassis.

To overcome this the hood latch plate should be reinforced by welding an angle-shaped plate to the underside of the front end as shown. This applies to

### Wheel Bearing Lubrication

NO grease is to be used in the so-called "grease caps." It can serve no useful purpose and could cause forcing the grease out onto brakes. The hub cavity of the wheel, between the inner and outer bearings, should be filled not to exceed the level of the bearing cups.

The bearings themselves should be packed—either by hand or by pressure pack equipment—so that all space around the bearing rollers is completely filled and then a light coating placed on the rollers and roller contact surface of the bearing cup.

### Vacuum System Oil Bath Cleaner

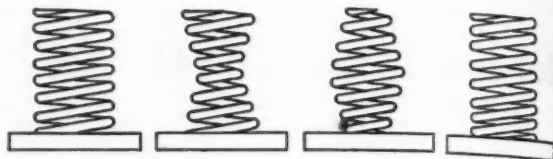
**CHASSIS** equipped with vacuum controlled units such as the Hydrovac power brakes, and trailer brakes, will experience premature engine wear if dust is drawn into the engine through leaks in the vacuum lines or connections.

In order to minimize engine wear due to the above condition an oil bath type air cleaner has been made available for International trucks. This kit No. 75 482 R91 can be installed in the field.

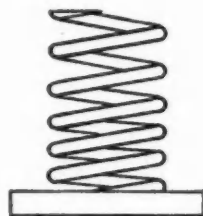
## McQuay-Norris

### Valve Spring Installation

**VALVE** springs having a uniform pitch and those which are symmetric on each side of the center can be installed with either end toward the head or block.

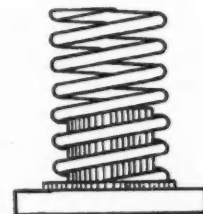
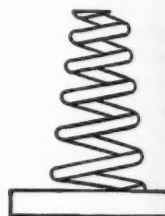


Valve springs which have two or more coils tightly wrapped at one end in order to reduce the tendency of the spring to surge and break in service must be installed with the heavy end (which has the coils closer together) against the block or head.



With variable pitch springs the spacing between the coils increases gradually from one end to the other. This variation dampens out vibration and surging. These springs must be installed with the more closely spaced coils toward the head or block.

Tapered coils with or without variable pitch are installed with the largest diameter end toward the head or block.



Uniform pitch spring with damper may be installed with either end toward the block or head, but the damper must always be in the end placed against the block or head. There are several applications using one spring inside another as a damper.

## Quaker State

### Ford Bearings

**THE** Ford connecting rod bearing (models up to '48) is a full-floating type so it must be lubricated on both sides. These bearings undergo three different loadings simultaneously; the load and movement of the crankshaft against the inner side of the bearing, plus the independent load and movement of each of the two rods on the outer side of the bearing. Fits and clearances of the bearing on the crankshaft as well as that in each of the two rods must be held within very close tolerances. Improper tolerances at any one of these three points will usually cause seizure of the bearing so that it no longer floats between the rods and crankshaft. This cuts off the oil supply to the entire bearing assembly, so that premature failures are apt to occur. Quaker State stresses the importance of adhering to Ford limits on out-of-round of crankshafts and rod big ends, fits and clearances of both sides of the bearing inserts.

# CCJ Bulletin Board



## Hey, Jack, Is That Jack Safe?

**Don't Let that "Let-Down" Feeling Get You;  
If You're a Jack Hazard, Get a Lift From These Tips**

If all the mechanics who had been killed or injured through accidents with lifts and jacks were laid end to end . . . they would make an effective impression on the others who will be injured this year in the same way—and would probably save the lives of those who are yet to become casualties.

Are you a potential jack hazard, Jack? You are if you:

1. Allow load to be lifted in a cocked position.
2. Fail to chock the vehicle, set the brakes or lock the ramp stops.
3. Let grease and grime

accumulate on your equipment or on the floor.

4. Neglect proper maintenance of the jack or lift.

5. Leave vehicle in raised position without blocking it.

Jacks were not made for man traps, but they do a surprisingly large amount of boob-catching. Worst of all, liver pills won't help the victim of that "let-down" feeling.

What are you doing to keep your name out of the obituary columns? Here's the way to live with this equipment and like it:

1. Inspect it before you trust it—see that the saddle

is clean, aligned, free to turn and shaped to fit.

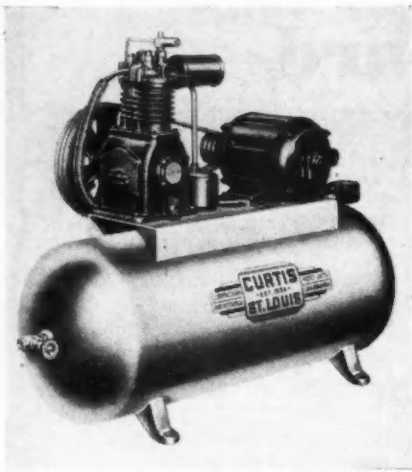
2. Take time to align—place jack or lift rails squarely under the load, and if tendency to slip is noted, remove it and start over. Don't try to beat it into place.

3. Block, lock, chock—block the wheels, lock the emergency brake and chock up the vehicle before you get under.

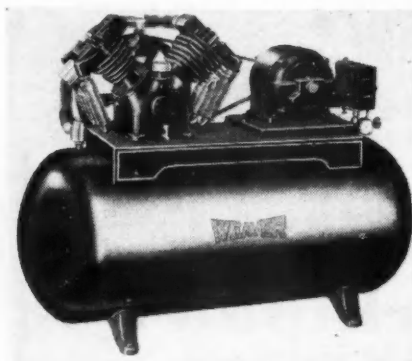
Safety is a habit with men who know a potential accident when they see one. Remember, safety pays bigger dividends than insurance policies!

**In These Days of Up-Lifts and Down-Beats,  
Here is a New Look at "Raising" Accidents**

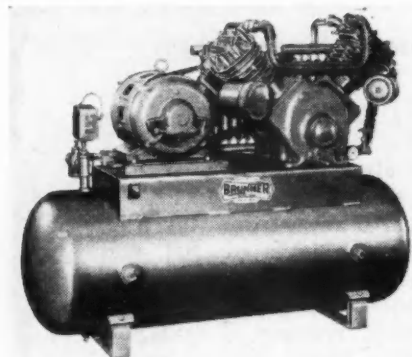




The Curtis "V" two-stage unit with automatic start and stop control unit

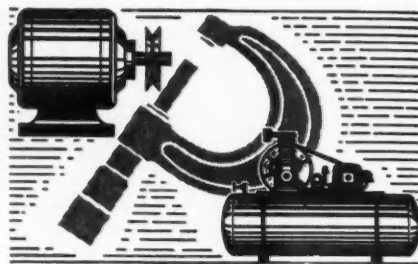
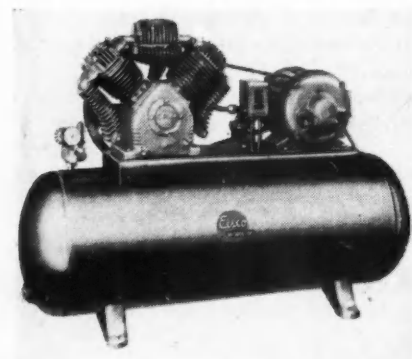


The Weaver WP30 and WP50 models, 3 and 5 hp two-stage 4-cylinder



Brunner's new 15 hp two-stage unit featuring a muffler-silencer, improved valve plate, automatic air release

Electric Sprayit compressor features replaceable cylinders, improved cooling, new designed intake and exhaust



## PRECISION TOOLS FOR THE MODERN SHOP

The seventh of a series of articles on selecting, operating and servicing shop tools and equipment. Previous articles covered:

1. Selecting Electric Tools . . . . . May
2. Selecting Pneumatic Tools . . . . . June

3. Servicing Air and Electric Tools . . . . . July
4. Selecting Hydraulic Equipment . . . . . Aug.
5. Care and Use of Hand Tools . . . . . Sept.
6. Servicing Shop Equipment . . . . . Oct.

# Practical Pointers on Selecting Air Compressors

by **M. K. SIMKINS**

Technical Editor,  
Commercial Car Journal

IF your air compressor has been operating eight to ten years or longer, it is very likely that you are paying a great deal more for power than necessary. In addition, your service may be hampered from time to time by insufficient air supply or costly breakdowns. If your painter, for example, is forced to wait frequently even a few seconds for air pressure to build up, that accumulative loss of time represents unnecessary and expensive waste that could have been averted with adequate equipment. If the mechanic waits only five minutes four times a day for another department to finish with an air-operated unit, that means a total of 104 wasted hours a year.

Many air compressors in service today, purchased say ten years ago and of a size barely large enough to meet requirements then, should be checked carefully with the idea of replacement. Models available today (many of them represented on these pages) are more efficient, more rug-

gedly designed and are guaranteed to produce more air at lower cost.

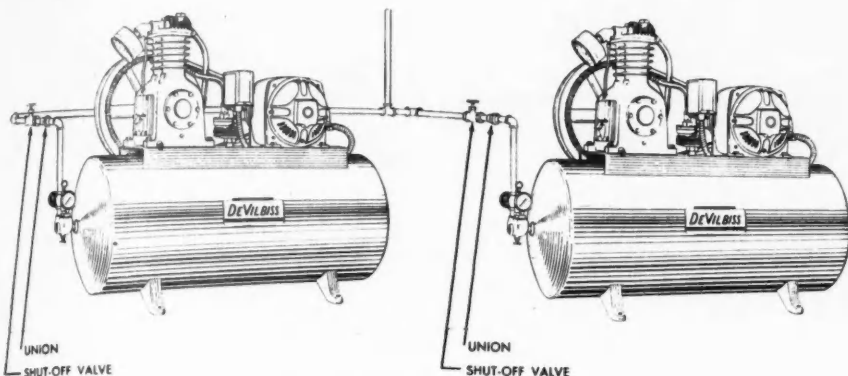
## Fleet Requirements

IN selecting the compressor to fill long term shop requirements, the fleetman should consider the following factors:

1. Maximum anticipated requirements with the possible future addition of other air-operated equipment.
2. The nature of the work, that is, whether large volumes of air are required, or whether high pressures will be needed.
3. The frequency with which air-operated devices are used—whether several units will be operated simultaneously.
4. The economy of operation, that is, whether the unit will produce the greatest amount of air with the least power consumption.

Your compressor should be replaced if—

1. The efficiency has decreased due to wear, overwork or overheating.
2. When the outfit is unable to supply your air requirements.
3. When time from cut-in to cut-out shows waste of electrical energy, and the increased overhead would pay for a new unit.



Two compressors supply a common air line. Left unit supplies normal needs while one at right cuts in when unusual pressures demand

## Showing size, type, style factors which should be considered when determining fleet shop requirements

The following chart will show the pumping time of several different size units. From this the operator will be able to determine the efficiency of his compressor. Be sure outlet valve is closed while making this test. More time between cut-in and cut-out than shown in the chart indicates poor efficiency and need of repair or replacement.

| Unit      | HP  | Tank    | Cut-In | Cut-Out | Time in min |
|-----------|-----|---------|--------|---------|-------------|
| Single    | 1/2 | 18 x 40 | 120 lb | 160 lb  | 5' 45"      |
| Single    | 1   | 18 x 40 | 120    | 160     | 3' 15"      |
| Single    | 3   | 20 x 48 | 120    | 160     | 1' 55"      |
| Single    | 5   | 20 x 48 | 120    | 160     | 1' 10"      |
| Two-stage | 1   | 20 x 48 | 140    | 175     | 4' 5"       |
| Two-stage | 3   | 20 x 48 | 140    | 175     | 1' 20"      |
| Two-stage | 5   | 20 x 60 | 140    | 175     | 1' 15"      |

### Size Requirements

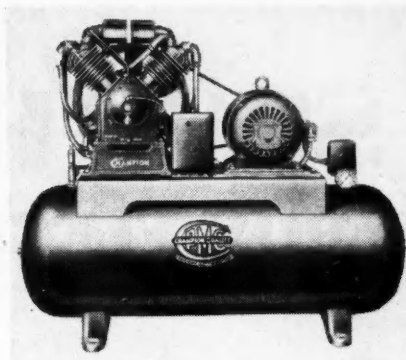
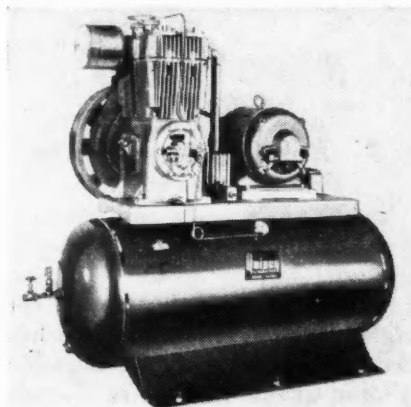
IN buying an air compressor for his shop, the fleetman should select a size that will supply more air than is actually required. This will allow for margin or reserve peak loads and permit intermittent operation conducive to a long-lived unit. The larger the compressor, the more easily it can supply air—it will work less time and more efficiently, according to manufacturers. This will also allow extra equipment to be added without overloading the compressor.

When determining the size required, the fleetman should list all

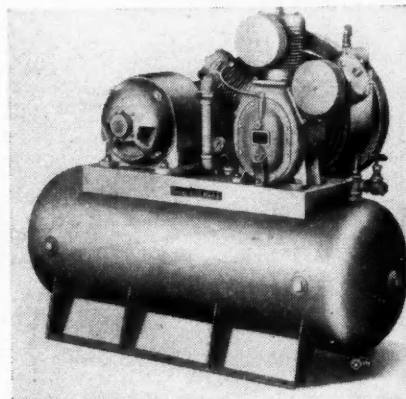
tools used, then divide them into those which will be used continuously and those which are operated intermittently or for brief periods. He will then obtain air capacities in cubic feet per minute of all tools and add those which will be used at the same time to find peak requirements. Maximum pressures required will be determined by the air-operated device using the highest pressure. He will then need to figure how much actual volume of air the compressor will

(TURN TO PAGE 116, PLEASE)

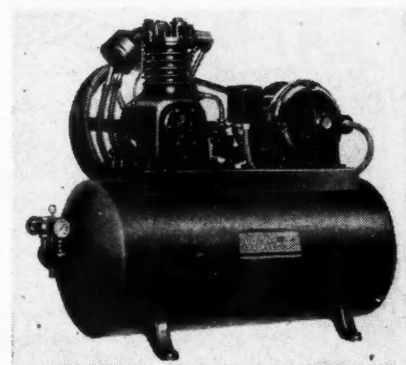
Quincy Model F-390, two-stage, air-cooled unit has aluminum heads



Champion's two-stage, motor-driven unit for general purpose shop duty

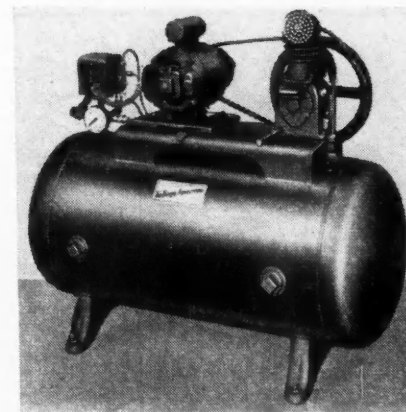


Ingersoll-Rand's Model 15T, a 15 hp, 3-cyl. unit, 80 to 250 lb pressure



The DeVilbiss compressor available in 8 models with motors from 1/4 to 5 hp and displacement from 3.5 to 21 cu ft

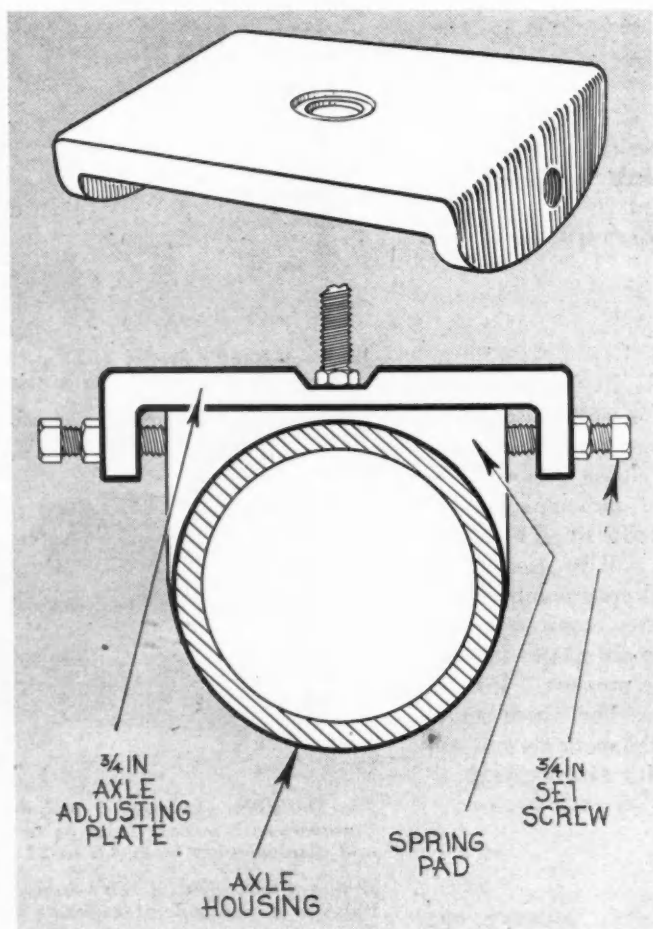
Kellogg-American's A-140 single-stage unit for spraying paint, inflating larger tire, operating grease and blow gun



# SHOP HINTS FROM FLEET SHOPS

# \$ 25

*For the Best Hint  
Published Each Month*



## Spring Alignment Plate

by Henry C. Williams  
Inland Motor Freight,  
Spokane, Wash.

We encounter variations in our springs after they are rebuilt in a local spring shop. Even though they don't vary over 3/16-in. between the center bolt and eye, this is sometimes responsible for axle misalignment. This causes excessive tire wear, hard rolling and "dog trotting."

I have devised this method of adjusting the axle to proper alignment to take up for this variation in springs. Our local foundry has cast up twelve of these parts for our own use.

The device is made of 3/4-in. plate bent at right angles at the ends and drilled and tapped here for 3/4-in. set screws. The center of this plate is drilled to take the spring center bolt head. The flat surface of this plate is made wider than the axle spring pad so that the plate fits snugly to the spring yet can be shifted on the axle pad through the set screws and lock nuts as shown.

By loosening the U-bolts, loosening one set screw and tightening the other the axle can be shifted to proper alignment regardless of spring length.



### 1. Ford Starting Tip

by Tim Vahle  
Iowa Ordnance Plant  
Burlington, Iowa

Ford uses a 4-volt ignition coil with a resistor in the line to reduce the 6-volts down to 4. We have had a lot of trouble when oil or moisture

would get on the distributor points and cause hard starting.

We found that by shorting out the resistance while pressing the starter button, 6 volts could be obtained at the coil and starting was much easier.

I have installed a light circuit relay on the cylinder block which will automatically cut out the resistor when



# \$5

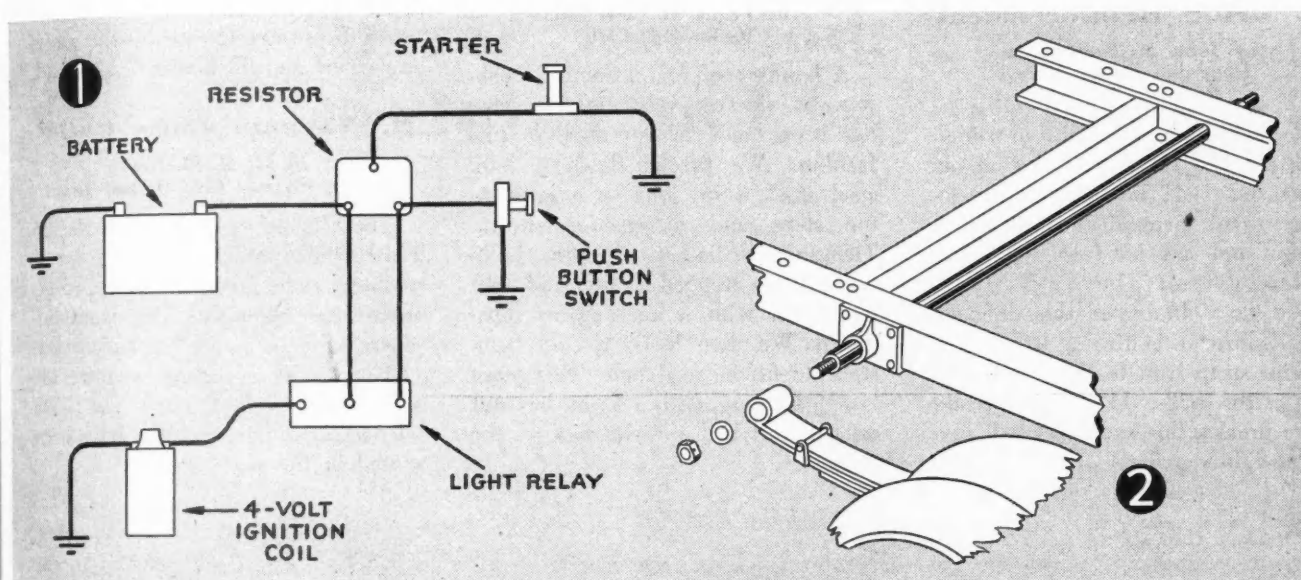
For All

Hints Published

Each Month

## SEE WHAT THE BOYS HAVE DONE THIS MONTH

You have rallied to the call this month with some fine tips on better truck maintenance. We have "opened up" a third page to present your ideas—and 8 fleetmen are \$60 richer. Yes 30,000 readers are also appreciative of your good work. Let's keep the shop hints coming and the readers reading. Get that "brainstorm" on paper and rush it to us. These \$5 bills are looking for a pocket, and the \$25 Hint of the Month is waiting for a writer.



the dash switch is pressed—and reverts back to 4 volts the instant the button is released.

This trick has saved us many trips in sending a man out to start these trucks.

### 2. Ford Spring Modification

by Charles A. Page  
Norris Creamery Co.  
Minneapolis, Minn.

We have several Ford AA 1½-ton trucks with bodies lengthened to 124 in. Since they are fully insulated for whole milk delivery, they are much heavier than standard bodies. As a result, we frequently have spring trouble. The rear spring trunnions break and the bushings squeeze out like putty. Here is the way we strengthened this assembly.

We took off the spring trunnions

and bored them out, providing a 1⅝-in. hole. Then we cut a hole in the frame on both sides to correspond with this. We fitted a 1⅝-in. cold rolled shaft and threaded it for rear axle shaft nuts. This was slipped through the spring eyes and the trunnions and the rear spring eyes, as shown.

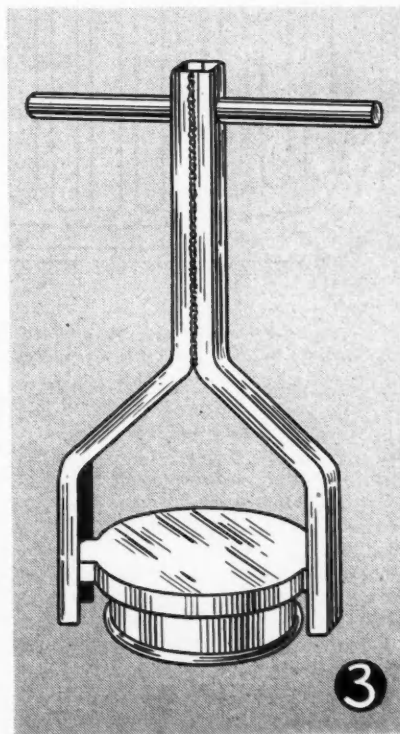
This has saved us many a rebuild job on these parts.

### 3. Radiator Cap Tool

by G. E. Upperman  
Continental Baking Co.  
Wheeling, W. Va.

I made a radiator tool to remove pressure type radiator caps, and find it saves a lot of skinned knuckles. These caps fit tight, and sometimes cause accidents when the drivers aren't cautious.

(TURN TO NEXT PAGE, PLEASE)



## SHOP HINTS . . .

Continued from page 47

The tool is made from 1 x 1/4-in. channel iron welded together at one end and spread apart in a U-shaped fashion at the other. This fits over the ears of the cap. A 6-in. handle of round iron is set into the top as shown.

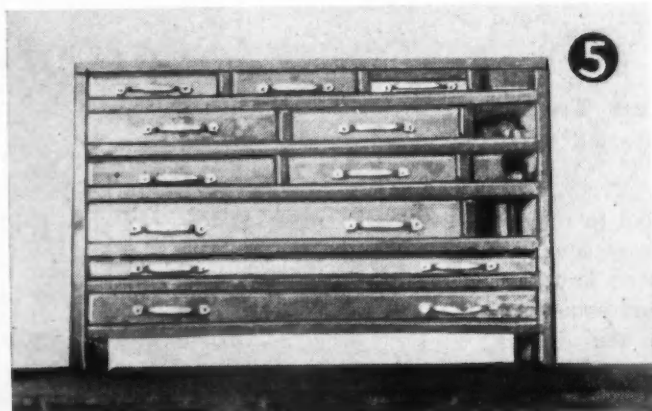
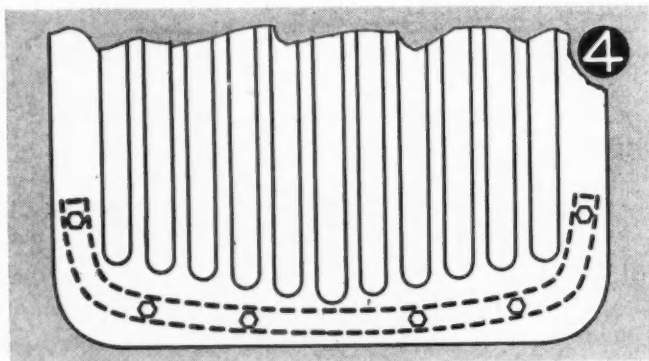
We hang this tool in an accessible place alongside the water can and find it very useful.

### 4. Grille Reinforcement

by John M. Kavanaugh  
Hegeman Farms Corp.  
Ridgewood, N. J.

We have had a great deal of trouble with cracked radiator grilles on our 1940 and 1941 model Ford trucks. They break around the bottom as shown and are hard to replace as well as "difficult to buy."

We have eliminated this difficulty by welding or bolting a strip of 1/8 x 1-in. strap iron to the inside bottom of the grille. If done before the piece breaks, this expedient will save an unsightly grille.



### 5. Tool Case

by Clinton B. Baker  
State Roads Commission, Easton, Md.

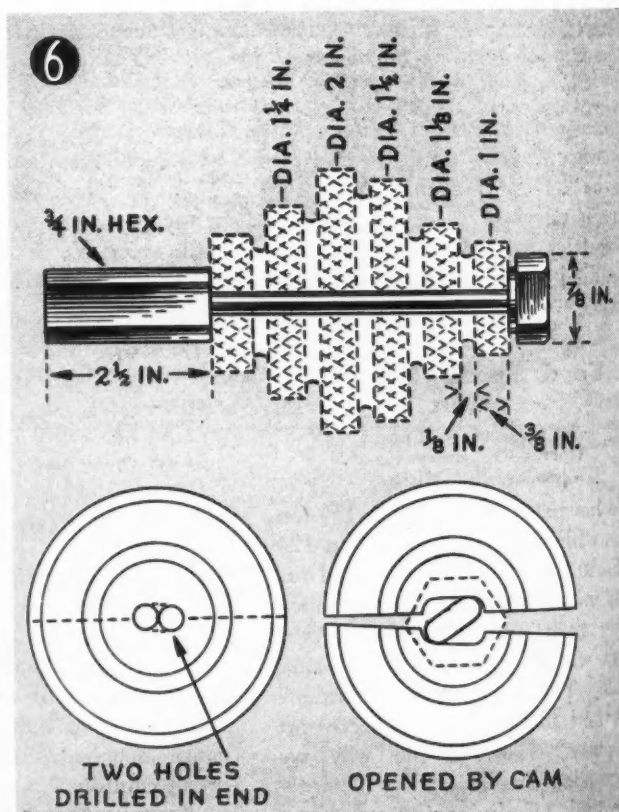
Here is a time saver for any shop. It is a fitted case for boxed tools and equipment such as taps, dies, reamers, etc., all sorted for size and marked so that the mechanic can find what he wants by looking at the drawer label.

Dimensions and construction details can be noted from the enclosed photograph. Every mechanic will have his own idea for size and labels.

### 6. Bushing Extractor

by Frank P. Coulomb  
Inglewood, Cal.

A handy tool for extracting bushings or sleeves, valve inserts, etc., has been made in our shop in this fashion. We turned down a 2-in. steel stock 3 in. long in a lathe to the steps and dimensions shown. Then we drilled two 1/4-in. holes through the stepped section and split it in half with a hacksaw as illustrated. We then made a cam from stock to fit the oval hole. This piece is 5 1/2 in. long, with a 7/8-in. hex nut on one end and a 3/4-in. hex on the other.



The extractor is set in the work, the cam turned until the shoulders of the extractor hug the bushing. Now the extractor can be tapped with a hammer to drive out the bushing.

Any machinist can make the tool in a short time, and will find it will really save mechanic's time.

### 7. Steering Post Lube

by J. Fischer  
East End Dairies, Inc., Indianapolis

Our Dodge WF and some of our International D5 and D15 series deliveries develop a squeak in the steering column. We find this originates in the steering mast jacket bushing.

In order to stop this we drill a small hole directly below the steering wheel and fill it with brake fluid.

### 8. Vacuum Gage Outlet

by R. M. Shelton  
Safety Convoy Co., Dallas, Tex.

There is no connection on the F6 Ford truck intake manifold for a vacuum gage installation. However, there are holes on the manifold, closed with a 7/8-in. stud and gasket.

To provide a fitting, remove the stud and install a Ford 11a.17595 silencer after the two holes have been closed in the sides.

# A Systematized Fleet Safety Program

BY THE BUREAU OF HIGHWAY SAFETY . . . . NATIONAL COUNCIL

OF PRIVATE MOTOR TRUCK OWNERS, INC., WASHINGTON, D. C.

The

# Why and How

## Driver Selection, Training and Supervision

The

# Why

SAFETY TEXT • NUMBER 3

AN unsafe driver is either ignorant or unskilled—ignorant and unconcerned as to what may happen to him and to others; or unskilled in that he lacks knowledge of the tools of his trade and the consequences of the unwise use of those tools. Such a person must not be permitted to learn the "hard way." He must be taught.

It has been said: "Safety is not a gift—it is an accomplishment!"

To accomplish the desired objectives of greater highway safety requires planning, time, hard work and persistent effort on the part of management. The proper SELECTION, TRAINING and SUPERVISION of drivers will always be the backbone of any program or effort in this direction.

Safety programs embracing practical methods of accident prevention, vehicle maintenance, and competent selection, training and supervision of drivers invariably succeed in lowering both accident rates and operating costs.



### Selection of Drivers

Finding the man fitted for the job requires careful analysis of each applicant's interests, temperament, capacity to learn, skill and physical fitness.

The objective of a sound "driver selection" program should be to establish sufficiently rigid employment requirements to elim-

inate the hiring of any employees who may fail to come up to expectations. All applicants not capable of developing into first class drivers should be weeded out by the preliminary requirements.

The irresponsible type of worker who seeks a job without a desire to render his best services should not be employed.

The qualifications to be considered in selecting drivers depend greatly upon the type of work they are to do, but in no instance should driving ability be overlooked in favor of other qualifications. For example, driver-salesmen should have special talent in salesmanship, but they also *must* be competent drivers. Otherwise, their accidents may completely offset their sales.

The customary methods of good employment procedure should be followed in selecting driver personnel. Such procedure will include: (1) the filing of the regular employment application form; (2) the personal interview; (3) the physical examination; (4) preliminary instructions and training on driving regulations and company policy; (5) psycho-physical tests (where available); (6) the road test; and (7) final approval.

Further details of selection procedure and sample testing forms will be found in "Instruction No. 3-A" accompanying the text on this subject and made a part hereof.

### Driver Training

The need for a systematic driver training program should be obvious to all fleet operators.

Superficial evidences of ability, such as years of driving or a driver's license, no longer can be accepted as proof that an applicant is a safe driver. Every new driver-applicant, regardless of his past experience, should be required to take a thorough driving test to demonstrate his ability to handle your vehicle safely.

Even though the preliminary interviews, investigations and tests of your applicants should indicate that they are experienced

(TURN TO NEXT PAGE, PLEASE)

No. 3 DRIVER

Selection, Training  
and Supervision





drivers or otherwise particularly fitted for the job, it is essential that they be educated and trained to become safe drivers.

Your training methods should also be applied from time to time to your present driving personnel to stimulate safety consciousness. Even your experienced drivers may develop bad habits which should not be overlooked.

The fundamentals of a good driver training program are outlined in "Instruction No. 3-B" of this article.

### Supervision of Drivers

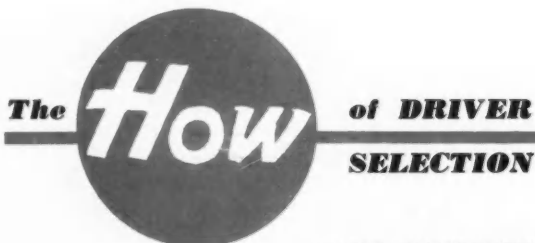
The success of any driver training program depends almost entirely upon the supervisor's knowledge of the subject and ability to impart that knowledge effectively to others.

It is essential that the one who supervises drivers possess the necessary qualifications of good leadership and is completely "sold" on the company's safety program if he is to inspire and effectively impart that "know-how" to his men.

Because he is closer to his men and knows them more intimately, the supervisor or foreman is in a unique position to discover evidences of unsafe practices on the part of the drivers under his control. He can apply the proper remedial measures before such unsound practices develop into habits.

The supervisor will be helped materially if management confers frequently with him concerning safety policies, bestows praise for excellence in safety work when due, stimulates any noticeable lag in the safety effort, and offers suggestions for improvement of the safety record.

The basic principles of effective driver supervision are set forth in more detail in the accompanying "Instruction No. 3-C."



### SAFETY INSTRUCTION No. 3A

**F**INDING and fitting the right man to the job is the first and perhaps the most important step in promoting individual efficiency and adjustment. This is particularly essential in the process of selecting drivers for commercial motor vehicles. It requires a careful analysis of each applicant's interest, skill, capacity and temperament.

The fundamentals of good driver-employment procedure are substantially the same in all fleet operations, whether large or small. Although the procedure may be greatly simplified in small fleets, the same care should be exercised in selecting competent and safe drivers as is generally followed in the large organizations.

When interviewing and selecting a driver the following fundamentals should be considered:

1. Physical fitness.
2. Attitude.
3. Aptitude or skill.

### Physical Fitness

The physical condition of drivers is of utmost importance. All drivers need not be huskies, but serious consideration should be given to the applicant's stature and fitness in relation to the type of vehicle he is to drive and the job he is to do.

### RECOMMENDED STANDARD PHYSICAL EXAMINATION FORM

For Drivers of Interstate Busses and Trucks  
(Note to Examining Physician): Read instructions before starting examination.

Be sure to record an answer to each question  
When negative or positive so state

#### PERSONAL AND MEDICAL HISTORY

Name in full.....  
Age last birthday..... Color.....  
Marital Status..... S M W D  
Address: Street..... City..... State.....  
Usual occupation.....  
Years experience as operator of commercial motor vehicles .....

#### History of past illnesses

(When positive insert date)

Tuberculosis..... Hemorrhoids..... Diabetes.....  
Pleurisy..... Syncope..... Syphilis.....  
Hemoptysis..... High Blood..... Gonorrhea.....  
Peptic Ulcer..... Pressure..... Hematuria.....  
Pneumonia..... Epilepsy or Fits.....  
Dysentery..... Paralysis.....  
History of hospitalization.....  
Have you other illnesses, injuries, or operations.....

#### RECORD OF PHYSICAL FINDINGS

General Appearance and Development: Good.....

Fair..... Poor.....  
Height..... Weight.....

Head:

Eyes: For distance { without glasses { Right 20 /

{ with glasses if worn { Left 20 /

Evidence of disease or injury: Right..... Left.....

Color Vision (Lantern).....

Ears: Hearing, 20 ft.: Right ear /20 Left ear /20

Disease or injury.....

Mouth..... Throat.....

Thorax:

Heart .....

If organic disease is present, is it fully compensated? .....

Blood pressure (sitting): Systolic..... Diastolic.....

Pulse: Before exercise..... After 2 min. rest.....

Lungs .....

Abdomen:

Scars..... Abnormal masses..... Tenderness.....

Hernia: Yes..... No..... If so, where?.....

Is truss worn?.....

Genito-Urinary:

Scars..... Urethral Discharge.....

Reflexes:

Rhomberg .....

Pupillary..... Light R..... L.....

Accommodation: R..... L.....

Knee Jerks:

Right: Normal..... Increased..... Absent.....

Left: Normal..... Increased..... Absent.....

Extremities:

Upper .....

Lower .....

Spine .....

Laboratory findings if tests are indicated:

Urine: Sp. Gr..... Alb..... Sug.....

Other .....

(Date) (Examining Physician)

A thorough medical examination by a qualified physician is recommended.

The Interstate Commerce Commission, in Part I of its Motor Carrier Safety Regulations, Revised, specifies minimum requirements and physical qualifications for drivers in interstate commerce and also recommends a *Standard Physical Examination Form* for use in this respect (Fig. 1).

#### PHYSICIAN'S CERTIFICATE

This is to certify that I have this day examined  
..... and find him  
(physically fit)  
(physically fit only when wearing glasses)  
(physically unfit and disqualifying condition has been  
discussed with applicant)

to perform the usual duties incident to employment as  
a driver of commercial motor vehicles. This certificate  
is based upon information obtained in the making of a  
physical examination in accordance with the regulations  
of the Interstate Commerce Commission for the qualifi-  
cation of drivers and the standard form recommended  
for such examination. I have kept on file in my office  
this record of his examination.

Date..... Place..... Signed.....  
(Examining physician)

Address.....

Driver's Signature.....

*ICC's Recommended Standard Physical Examination  
Form is reproduced at left while accompanying  
Physician's Certificate is shown above*

Submission of the physical report may be made at the time  
the applicant first files his employment application, or the medical  
examination may be deferred until after the applicant has satis-  
factorily met the requirements of the personal interview. This  
latter course provides for rejection if the applicant is physically  
unfit or lacking in other qualifications.

Special follow-up examinations at regular intervals also are  
recommended for all driving personnel. Re-examinations have  
proven useful in discovering employee disabilities or deficiencies  
which may develop subsequent to employment.

Every medical report should be in writing and be filed as a  
part of the driver's permanent employment record.

#### Attitude

The personal interview is indispensable in ascertaining the  
prospective driver's attitude toward the job he is to perform.  
A man's attitude, however, can only be treated as an indication of  
ability to do a good job; it cannot be considered as a conclusive  
determining factor.

The interview should be designed to determine whether the  
applicant has the capacity to become a good, safe driver and  
otherwise satisfactorily fulfill the requirements of the job for  
which he is hired. Traits to be rated should be listed and the  
observations thereon recorded.

Particular attention should be paid to indications of attitude  
with respect to:

1. His job
2. His employer
3. His equipment
4. His family responsibilities
5. His customers
6. His competitors
7. His fellow-employees
8. Other drivers
9. Law-enforcement officers
10. Courtesy
11. Safety
12. Receiving instructions
13. Criticism
14. Self improvement.

#### Aptitude or Skill

Ability to drive a vehicle, quickness of understanding, capacity  
to learn, willingness to carry out orders and to obey traffic laws  
and the company rules are the principal essentials of a good  
driver.

An interview may indicate a man's abilities and aptitudes, but  
such aptitudes may be determined through examination of pre-  
vious employment records and references, standard tests and road  
checks, and personal observation of the applicant while being  
tested.

#### Driving Regulations and Company Policy

No driver should be permitted to operate his employer's equipment  
until he is thoroughly acquainted with company policies and regu-  
lations.

The applicant should be furnished with a copy of the company's  
manual or other form of instructions which outlines the employer's  
policies and driving regulations. After sufficient opportunity for  
study, the applicant should be quizzed on his knowledge.

Such a quiz may be oral, or a number of pertinent questions  
may be listed on slips of paper on which the applicant can write  
or check his answers. A passing score of 70 per cent should be  
required.

Applicants failing to make a passing grade should be required to  
again study the reference material and repeat the examination  
until an acceptable grade is received.

A simple test to determine the applicant's knowledge of traffic  
practices, traffic signs and signals, and state, federal and local  
laws is also recommended. Such examination can be conducted  
during the interview or at the same time the applicant is quizzed  
on company policies and regulations.



#### Psycho-Physical Tests

There are many types of psycho-physical tests which may be  
given to measure such factors as reaction time, acuity of vision,  
field of vision, color discrimination, depth perception, suscepti-  
bility to glare, eye-hand coordination, hearing, speed estimation,  
emotional stability, etc. Such tests usually stimulate driver interest  
and tend to impress employees with the fact that management is  
striving for top physical condition and driving ability. (Write to  
the Council, your local police or safety council, your insurance  
agent, etc., for further details if desired.)

#### Road Tests

The road test is one of the most effective means of determining  
an applicant's qualifications as a driver.

Every applicant should be required to demonstrate his ability  
to handle a vehicle of the type and size which he will be expected  
to operate in regular service.

The preferred procedure for giving a road test is to send the  
applicant out with a trained examiner over a predetermined  
route. The test route should be approximately five miles long and  
should include several blocks through a business district where  
there is fairly heavy traffic. The route should be selected so that  
as many as possible of the following conditions will be encountered:

(TURN TO NEXT PAGE, PLEASE)

1. A straight-away of two or three blocks where there is very little traffic (to test the applicant's ability to apply the brakes and to back the vehicle).
2. At least five right and left turns, including one sharp right and one sharp left turn.
3. At least two intersections with "STOP" signs.
4. At least three areas with signs indicating "SCHOOL ZONE," "INTERSECTING STREETS," "RAILROAD CROSSING," etc.
5. At least two intersections controlled by traffic signals.
6. Several blocks and several turns with a business district on streets used by trolley cars or buses.
7. Several blocks within a residential district.
8. A street where a "U" turn is permitted in the middle of a block.
9. A place to park parallel to the curb and between other cars.
10. A curved street or roadway.
11. A hill upon which to start and stop.

In conducting the road test, the examiner should give full attention to the applicant and closely observe all of his actions which affect the proper operation of the vehicle. Directions should be given well in advance so as to allow sufficient time for the applicant to follow instructions safely.

To assure the examiner of an opportunity to check all important items incidental to the safe operation of a motor vehicle, the applicant-driver should be instructed to do the following:

1. Stop the vehicle as quickly as possible from a speed of 20 miles an hour.
2. Back the vehicle for at least 50 feet.
3. Demonstrate the proper use of parking brakes.
4. Park the vehicle parallel to the curb between two other vehicles.
5. Stop and start the vehicle while on a fairly steep hill.
6. Turn the vehicle around in the middle of a block.
7. Explain the meaning of each traffic sign encountered.
8. Pass another vehicle going in the same direction.

Various forms may be developed for use by the examiner in rating each applicant's performance under the road test. (A sample form in use by large fleet operators for rating drivers during road test is reproduced herewith through the courtesy of the author, Amos E. Neyhart, Institute of Public Safety, Pennsylvania State College. Fig. 2)

All data concerning the findings from the examination of each applicant should be recorded and filed for later reference as a part of the individual's personal employment record.

## The How of DRIVER TRAINING

SAFETY INSTRUCTION No. 3B

THE success of any Highway Safety Program depends in a large degree to the extent and type of training given to the driver.

Every new driver, regardless of his past experience, should be thoroughly educated and trained to become a safe driver. Refresher training courses should also be applied to present driving personnel to stimulate safety consciousness, for even experienced drivers can develop bad habits.

Properly trained to work safely, skillfully and efficiently, your

drivers will minimize accidents, prolong the life of your equipment, reduce your operating and insurance costs, and build up your goodwill with customers, and the public.

### The Instructor

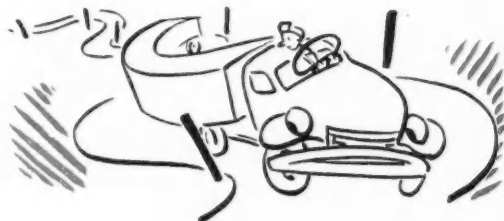
In small fleets it is usually the owner or manager who is responsible for the training of his drivers. In larger organizations, a safety expert or a specialized instructor may be assigned the task of driver training.

Anyone who assumes the instructor's role must of necessity:

1. Have a good general knowledge of the subject matter himself and the ability to impart such knowledge effectively to others.
2. Have the tact, patience and sympathetic understanding required for teaching.
3. Have the facilities and proper "tools" for the job; and
4. Have his instruction program well organized and adaptable to his own particular needs.

### Individual Training Preferred

Individual instruction and training of each driver has been found to be the most effective. While group instruction is beneficial, best results will be obtained through individual instruction, test and follow up.



### Instruction Procedure

Good instruction will include both driver training (or practice behind the wheel) and driver education.

Training involves the formation of skills in doing the job—the driving of a truck—and consists of:

1. Lessons in fundamentals for beginners
2. The road check or driving in traffic (for the improvement of driving practices)
3. Skill developing exercises (to develop skills which previous tests showed were lacking in the driver)
4. Correction or compensation of defects found in medical and psycho-physical tests.

In addition to the preliminary test procedures set forth in the preceding instructions on "DRIVER SELECTION," your drivers should receive thorough instructions regarding:

1. The functions and proper operation of the vehicle's principal components;
2. The necessity for daily inspection of the vehicle and its required safety equipment;
3. The proper way of starting the motor; properly shifting gears both on the level and when going up or down grade; proper place on the highway; driver courtesy; how to brake properly; correct use of lights; how to get out of a skid; how and when to signal; when to use flags or flares, etc.;
4. The employer's rules on driving, loading and delivery practices;
5. The type, cause and prevention of accidents peculiar to the nature of the employer's business;
6. What to do in case of an accident (how to make out an accident report on the forms provided for such purpose, how to get statements from witnesses, etc.) (Note: the subject of "Accident Reports and Records," including recommended forms therefor, will be specially treated in the next article of this series.)

(TURN TO PAGE 15, PLEASE)



Check List and Score Sheet for  
ROAD TEST IN TRAFFIC

for  
Testing, Selecting, Rating and Training Truck Drivers

By Amos E. Neyhart

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Name of Driver \_\_\_\_\_ Final Score (Sum of Parts I and II) \_\_\_\_\_  
Street and Number \_\_\_\_\_ Final Letter Grade \_\_\_\_\_  
City and State \_\_\_\_\_ Date \_\_\_\_\_

PART I — SPECIFIC

I. CHECKING THE DRIVER

| ITEMS  | DEDUCT | CHECK (✓) ITEMS<br>MISSED BY DRIVER | DEDUCTIONS |
|--|--------|-------------------------------------|------------|
| A. Fails to enter vehicle from curb side—when practical..... | 2      | <input type="checkbox"/>            | _____      |
| B. Fails to check doors to see if closed properly.....       | 2      | <input type="checkbox"/>            | _____      |
| C. Fails to adjust windows for ventilation.....              | 2      | <input type="checkbox"/>            | _____      |
| D. Fails to adjust rear-view mirrors.....                    | 3      | <input type="checkbox"/>            | _____      |
| E. Fails to adjust seat properly.....                        | 1      | <input type="checkbox"/>            | _____      |
| F. Fails to assume erect and alert driving position.....     | 1      | <input type="checkbox"/>            | _____      |

II. STARTING ENGINE

|  |   |                          |       |
|--|---|--------------------------|-------|
| A. Fails to depress clutch pedal.....  | 1 | <input type="checkbox"/> | _____ |
| B. Does not check gearshift lever for neutral position.....                                  | 2 | <input type="checkbox"/> | _____ |
| C. Fails to turn on ignition switch before pressing starter button.....                      | 1 | <input type="checkbox"/> | _____ |
| D. Does not release starter button as soon as engine starts to operate on its own power..... | 2 | <input type="checkbox"/> | _____ |
| E. Spends too much time trying to get engine to run, fails to use choke properly.....        | 1 | <input type="checkbox"/> | _____ |
| F. Does not allow engine to warm up.....   | 5 | <input type="checkbox"/> | _____ |
| G. Races engine during warm-up period.....   | 5 | <input type="checkbox"/> | _____ |
| H. Fails to check air pressure.....  | 5 | <input type="checkbox"/> | _____ |

III. STARTING THE VEHICLE IN LOW

|  |   |                          |       |
|--|---|--------------------------|-------|
| A. Fails to check traffic conditions.....          | 5 | <input type="checkbox"/> | _____ |
| B. Selects wrong gear (does not start in low)..... | 3 | <input type="checkbox"/> | _____ |
| C. Does not release hand brake.....                | 1 | <input type="checkbox"/> | _____ |
| D. Rolls back when on a grade.....                 | 5 | <input type="checkbox"/> | _____ |
| E. Races the engine.....                           | 5 | <input type="checkbox"/> | _____ |
| F. Stalls the engine.....                          | 5 | <input type="checkbox"/> | _____ |

| ITEMS   | DEDUCT | CHECK (✓) ITEMS<br>MISSED BY DRIVER | DEDUCTIONS |
|---|--------|-------------------------------------|------------|
| <b>IV. BACKING</b>                                    |        |                                     |            |
| A. Fails to stop in correct position to back.....     | 5      | <input type="checkbox"/>            | _____      |
| B. Fails to go to rear of vehicle before backing..... | 5      | <input type="checkbox"/>            | _____      |
| C. Fails to use both mirrors when backing.....        | 5      | <input type="checkbox"/>            | _____      |
| D. Fails to keep guide in sight.....                  | 3      | <input type="checkbox"/>            | _____      |
| E. Backs jerkily.....                                 | 2      | <input type="checkbox"/>            | _____      |
| F. Oversteers and zigzags when backing.....           | 2      | <input type="checkbox"/>            | _____      |

V. CLUTCHING, SHIFTING GEARS

|  |   |                          |       |
|--|---|--------------------------|-------|
| A. Rides the clutch.....   | 3 | <input type="checkbox"/> | _____ |
| B. Fails to keep eyes on the road during shifting maneuver.....                        | 3 | <input type="checkbox"/> | _____ |
| C. Stays in low gear(s) too long.....  | 3 | <input type="checkbox"/> | _____ |
| D. Fails to attain proper speed when shifting to higher gears.....                     | 3 | <input type="checkbox"/> | _____ |
| E. Stays in high gear(s) too long.....   | 3 | <input type="checkbox"/> | _____ |
| F. Stalls the engine.....  | 5 | <input type="checkbox"/> | _____ |
| G. Fails to "double clutch" and clashes gears (any other clashing of gears).....       | 5 | <input type="checkbox"/> | _____ |
| H. Slips clutch to hold vehicle from rolling back while waiting at traffic signal..... | 3 | <input type="checkbox"/> | _____ |
| I. Keeps clutch pedal depressed while waiting at traffic signal.....                   | 1 | <input type="checkbox"/> | _____ |
| J. Selects wrong gear—upgrade, downgrade or on level.....                              | 3 | <input type="checkbox"/> | _____ |
| K. Coasts down grades, up to stop signs and traffic lights.....                        | 3 | <input type="checkbox"/> | _____ |

VI. STEERING

|   |   |                          |       |
|---|---|--------------------------|-------|
| A. Places hands in unstable position on wheel.....    | 2 | <input type="checkbox"/> | _____ |
| B. Steers abruptly, not smoothly.....                 | 5 | <input type="checkbox"/> | _____ |
| C. Rests arm on window.....                           | 2 | <input type="checkbox"/> | _____ |
| D. Uses one hand occasionally.....                    | 2 | <input type="checkbox"/> | _____ |
| E. Turns steering wheel while vehicle is at rest..... | 2 | <input type="checkbox"/> | _____ |

VII. RAILROAD CROSSING

|   |   |                          |       |
|---|---|--------------------------|-------|
| A. Fails to look in all directions.....   | 5 | <input type="checkbox"/> | _____ |
| B. Fails to come to full stop when necessary.....   | 5 | <input type="checkbox"/> | _____ |
| C. Fails to stop at a safe place, if necessary.....   | 5 | <input type="checkbox"/> | _____ |
| D. After stopping fails to shift to lower gear and remain in that gear until clear of tracks..... | 5 | <input type="checkbox"/> | _____ |
| E. Fails to drive in correct position when crossing tracks.....                                   | 5 | <input type="checkbox"/> | _____ |

VIII. SPEED CONTROL (Exclusive of Turns)

|  |   |                          |       |
|--|---|--------------------------|-------|
| A. Too fast for conditions.....          | 5 | <input type="checkbox"/> | _____ |
| B. In excess of marked speed limits..... | 4 | <input type="checkbox"/> | _____ |
| C. Too slow for conditions.....          | 2 | <input type="checkbox"/> | _____ |
| D. Brakes on curves.....                 | 5 | <input type="checkbox"/> | _____ |

Standard Neyhart Road Test check list and score sheet, furnished by National Council of Private Motor Truck Owners, Inc. See next page for reverse side

| ITEMS  | DEDUCT     | CHECK (✓) ITEMS MISSED BY DRIVER | DEDUCTIONS               |                          |                  |
|--|------------|----------------------------------|--------------------------|--------------------------|------------------|
| <b>IX. STOPPING</b>  |            |                                  |                          |                          |                  |
| A. Before necessary (especially at signals and signs).....   | 1          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Not soon enough (over-running crosswalk or avoidance zone line).....  | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Not at a safe place (too close to other vehicles, etc.).....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>X. STOP STREETS</b>   |            |                                  |                          |                          |                  |
| A. Fails to come to full stop.....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Fails to stop in a position to see roadway to the right and left (second stop if necessary).....              | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Hesitates too long for conditions.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XI. UNCONTROLLED INTERSECTIONS OR THROUGH STREETS</b>   |            |                                  |                          |                          |                  |
| A. Fails to slow down (to stop if necessary).....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Fails to look in all directions.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Fails to shift to lower gears when necessary.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Fails to respond to hazardous traffic conditions in the making.....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XII. SIGNALING FAILURES</b>   |            |                                  |                          |                          |                  |
| A. Leaving curb—fails to signal.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Leaving curb—fails to look back.....  | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Turning—fails to use turn signals.....  | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Leaves turn signal on, after turning.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Does not use turn signals moving from lane to lane.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| F. Uses horn improperly or fails to use horn.....  | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| G. Fails to observe courtesy of signaling—hand signals when possible.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XIII. SIGNAL VIOLATIONS</b>   |            |                                  |                          |                          |                  |
| A. Traffic signal (through on amber).....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Traffic signal (through on red).....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Traffic officer.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XIV. PASSING OTHER VEHICLES GOING IN SAME DIRECTION</b>   |            |                                  |                          |                          |                  |
| A. Fails to make sure road ahead and behind is clear.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Misjudges speed of oncoming traffic.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Passes on curve.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Passes at intersection.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Passes at crest of hill.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| F. Cuts back into line too soon after passing.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| G. Passes by weaving through traffic.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| H. Starts passing when approaching obstructions in center of street.....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| I. Pulls into center traffic lane when approaching center of street obstructions such as pedestrian islands..... | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| J. Passes so as to block vehicles at right from steering around parked or slow moving vehicle.....               | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| K. Fails to observe indications that parked vehicle may start from curb.....                                     | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XV. POSITION OF VEHICLE ON ROADWAY</b>  |            |                                  |                          |                          |                  |
| <b>TRAFFIC LANES (Exclusive of Turns—Red or Unmarked)</b>  |            |                                  |                          |                          |                  |
| A. Fails to drive in proper lane.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Straddles traffic lanes (marked or unmarked).....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Straddles at signal or sign when stopping.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Follows too close to other vehicles.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Drives too close to other vehicles, moving objects, etc.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>TURNING (Right)</b>   |            |                                  |                          |                          |                  |
| A. Approaches from improper lane.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. At improper speed (too fast or too slow).....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. In improper lane during turn.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Into improper lane after turn.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Strikes curb.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| F. Makes turn unnecessarily wide.....  | 1          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| G. Slides away, then turns right.....  | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| H. Shifts gears while turning.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>TURNING (Left)</b>  |            |                                  |                          |                          |                  |
| A. Approaches from improper lane.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. At improper speed (too fast or too slow).....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. In improper lane during turn.....   | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Into improper lane after turn.....  | 3          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Cuts corner too short.....  | 1          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| F. Cuts corner too wide.....   | 1          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| G. Slides away, then turns left.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| H. Shifts gears while turning.....   | 2          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>XVI. SMOOTHNESS OF OPERATION</b>  |            |                                  |                          |                          |                  |
| (Deduct one point each time cylinder is tipped)  |            |                                  |                          |                          |                  |
| A. Rough starts—By Jerk Recorder or Tumbling Cylinders Tally.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| B. Rough stops—By Jerk Recorder or Tumbling Cylinders Tally.....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| C. Uses clutch roughly.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| D. Uses brakes roughly or unevenly.....  | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| E. Fails to hold accelerator steady.....   | 5          | <input type="checkbox"/>         | <input type="checkbox"/> |                          |                  |
| <b>PART I—TOTAL SCORE</b>  |            |                                  |                          |                          |                  |
| <b>PART II—GENERAL</b>   |            |                                  |                          |                          |                  |
| <b>ITEMS</b>   |            |                                  |                          |                          |                  |
| I. Inattentive (day dreams, etc.)  | Not at all | Occasionally                     | Often                    | Over entire route        | TOTAL DEDUCTIONS |
| II. Nervous and Hesitant   | Not at all | Occasionally                     | Often                    | All the time             |                  |
| III. Overconfident   | Not at all | Part of time                     | Cocky                    |                          |                  |
| IV. Fails to use rear-view mirrors   | Not at all | Part of time                     | Over entire route        |                          |                  |
| V. Fails to anticipate or respond to hazardous traffic conditions in the making (including pedestrians)          | Not at all | Part of time                     | All the time             |                          |                  |
| <b>PART II—TOTAL SCORE</b>   |            |                                  |                          | <b>GRAND TOTAL SCORE</b> |                  |
| Checker's Signature.....   |            |                                  |                          |                          |                  |

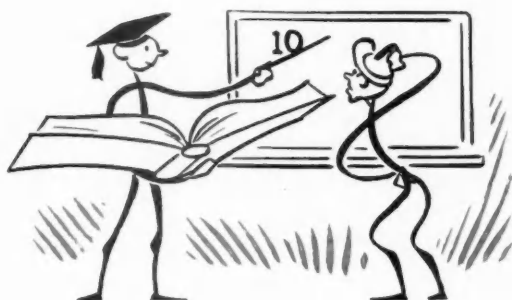
## Education

The acquisition of ideas, information, appreciations and helpful attitudes by your drivers must be stimulated through education and teaching. It should include:

- Knowledge of the physical laws which affect a moving vehicle
- Knowledge of local, state and federal laws affecting motor vehicles
- Knowledge of recognized sound driving practices
- An appreciation of the rights of other users of the highway
- An appreciation of the part that courtesy and sportsmanship play in making driving safer and more enjoyable
- An appreciation of the value of "defensive" driving
- An appreciation of the part that good physical condition plays in the driver's ability to drive safely
- An appreciation of the value of preventive maintenance and conservation.

It is also recommended that a Company Safety Manual be prepared for distribution to each driver. The suggestions contained in our preceding article on "Driver Responsibility" may well serve as a foundation for such a proposed safety manual. It should also include specific instructions pertinent to your own business or delivery operations as well as reproductions of or excerpts from applicable local traffic rules and regulations. Interstate drivers should also be furnished with a copy of the ICC Motor Carrier Safety Regulations, Revised.

In summary, the following GENERAL OUTLINE for an effective DRIVERS TRAINING PROGRAM, applicable to both individual and classroom instruction methods, may prove helpful.



### Ten-Point Training Outline

- I. Improvement of employee's attitude and clarification of company rules and policies.
  - A. Through knowledge of company rules and their importance.
  - B. Relationship of company and customer—
    1. Cleanliness (uniform, neat appearance).
    2. Personality (courteous, considerate).
    3. Physical condition (proper test, relaxation and diet).
- II. Handling of Cargo
  - A. General cargo.
  - B. Proper procedure of handling waybills, invoices, delivery slips, C.O.D. shipments, making pick-ups.
- III. Accidents and Causes.
  - A. Analysis of traffic and compensation accidents.
  - B. Discussion of types of accidents.
  - C. Diagrams of various accidents and methods of prevention
  - D. Proper procedure to follow in case of an accident.
- IV. Conservation of Equipment.
  - A. Tires.
  - B. Brakes.
  - C. Clutch and transmission.
  - D. Axles.
  - E. Steering.
  - F. Cooling system.

- G. Lubrication and engine oil and gasoline.
- H. Lights and electrical equipment.
- V. Driving Tests
  - A. Working knowledge of various types of equipment.
  - B. Smoothness of shifting gears (double clutching).
  - C. Backing.
  - D. Parking.
  - E. Starting and Stopping.
- VI. Psycho-Physical Tests.
  - A. Visual acuity.
  - B. Field of vision.
  - C. Glare (night vision).
  - D. Depth of perception.
  - E. Color vision.
  - F. Eye dominance.
  - G. Steadiness.
  - H. Reaction (eye and foot).
- VII. Driving Rules and Regulations of the Road.
  - A. Local safety and traffic laws.
  - B. State.
  - C. I.C.C.
  - D. Check stations, routes, etc.
  - E. First aid (what to do and what not to do).
- VIII. Educational and Inspirational Material.
  - A. Company rule book.
  - B. Safety literature and posters.
  - C. Slide films or movies.
  - D. Worn and damaged truck parts.
- IX. General Review of Program.
  - A. Open discussion of questions and answers.
  - B. Final Examination.
- X. Practice trip under guidance of thoroughly trained supervisor.

## The **How** of DRIVER SUPERVISION

SAFETY INSTRUCTION No. 3C

AS long as drivers of vehicles are employed they will have to be SUPERVISED. The development and maintenance of a continuous interest by your driver personnel in your safety program requires EFFICIENT SUPERVISION.

The "SUPERVISOR" is the individual who has direct charge and supervision of the driver. He may be the owner, manager, foreman, safety engineer or anyone appointed and authorized to educate in safety and control driver behavior.

Supervisors must be well qualified to teach safety, develop cooperative management relations, encourage willing compliance with company policies and cultivate desirable driver attitudes. Supervision entails seeing to it that things are properly done; it calls for the control of human behavior; the maintenance of morale; the development of loyalty—it requires leadership of the highest degree.

### Basic Principles

- A good supervisor must—
- Possess a proven ability to influence desirable attitude and instill complete confidence in men;
- Encourage and stimulate each man as an individual;
- Treat all employees equally and fairly;
- Know company policies and practices and be prepared to back up his actions in accordance with these policies;
- Be capable of recognizing the needs for selective training and

(TURN TO NEXT PAGE, PLEASE)



seeing that those needs are met;

Have sufficient authority to properly deal with each of his several responsibilities.

Be completely "sold" on the safety program in order to effectively impart his knowledge of these principles to his men.

In handling his men, the good supervisor will:

1. Study each driver individually and deal with him according to his own personal characteristics.
2. Set a good example by his own actions.
3. Lead and guide—not "boss"—his men; be quick to praise; give credit where due and thus stimulate interest and ambition.
4. Treat all with equal fairness.
5. Be patient and sympathetic; be ready at all times to listen to complaints, counsel with his drivers; acquaint them with company policies, etc.
6. "Keep books" on every driver, jotting down his good and bad characteristics, his accidents and their causes, and any other data that will help build up a factual record of the man's experience or conduct.



## Selling the Driver

There are also certain factors which every good supervisor will keep in mind when he has a selling job to do on safety among his men.

The individual driver is likely to respond to messages that appeal to his interest in one or more of the following:

*Himself:* His self-importance, personal ambitions, things he can do well.

*Life's basics:* His security, paycheck, health, working conditions.

*Other people in this order:* Immediate family, relatives, friends, fellow-employees.

*Anything close to the field* in which he is active.

*Hobbies:* Things he enjoys doing.

Studying each man as an individual will tell the supervisor which of the above appeals will bring the best results.

In attempting to win employee cooperation in dealing with any specific problems, the supervisor must (1) get the facts; (2) tell them carefully; (3) consult the people involved; (4) take a course of constructive actions; and (5) follow up the results.

## SAFETY INSTRUCTIONS

### In This Highway Safety Program for Commercial Vehicle Operators

THIS ISSUE: Driver Selection, Training and Supervision

NEXT ISSUE: Accident Reports and Records

PRECEDING ISSUES: Management Responsibility  
Driver Responsibility

#### SUCCEEDING ISSUES:

Accident Reports and Records  
Human Engineering  
Visual Information . . . Contests . . . Awards  
Group Safety Meetings . . . Development of Safety Committees  
First-Aid Training  
Conservation of Equipment  
Unusual Highway Hazards; Winter Driving; Holiday Hazards; Night Driving; Highway-Railroad Grade Crossings  
Fire Prevention  
Safety Through Courtesy . . . Defensive Driving

#### Your Own Highway Safety Program

This and other installments are punched marked for removal and insertion in standard three-ring binder. Save them! Use them!

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## The Conference Corner



# Question: Can Propeller Shafts be Cut Down or Lengthened Successfully in the Fleet Shop?

**Verdict of Conferees . . .** If the fleet has proper equipment for cutting tubing, machining, aligning, welding, modifications can be accomplished

### Majority of Changeovers Will Be Satisfactory

by C. E. Wood

Sales Manager  
Blood Brothers Machine  
Company

"The question of shortening propeller shafts is always open for discussion. It has been our experience that a high speed shaft must be straightened and balanced very carefully to insure smooth operation at all speeds. We have installed expensive equip-

ment for this purpose, and yet we sometimes experience difficulty in making a unit meet specifications as to runout and vibration.

"There is one advantage in favor of the fleet shop changeover to a longer assembly, and that is as the unit is made shorter, the natural vibration period is increased beyond the range of the R.P.M. encountered in operation. With careful handling, and straightening done in a lathe, the fleet shop can do a fair job of shortening. We doubt, however, from our experience, they can do the job for which the manufacturer has set up special equipment.

"However, if the fleet shop or others find it necessary to make changes in existing units, we suggest a careful note be made of the line up of the yokes in the assembly, the set be shortened at the spline end, that the spline stub be carefully cut out of the tube by removing the weld and tube end be faced so that the end be true before the spline stub is reinstalled.

"Also the set should be straightened before and after welding. By following this procedure and handling the assembly as above, the unit will perform satisfactorily in the majority of the changeovers."

### Shops Properly Equipped Can Do a Successful Job

by R. E. Jeffries

General Sales Manager  
New England Products  
Corp.

"First, and most important, no fleet shop should attempt to cut down a propeller shaft unless it has the proper equipment for doing the job. Unless a shop has the equipment for cutting tubing, machining off welded portions of shaft, and aligning the compo-

nents, straightening equipment and satisfactory welding equipment, the job should be turned over to a universal joint and drive shaft specialist. Although the job cannot be termed difficult, it is essential that the proper equipment be available. Anything short of this would be pure guess work.

"Most of the major manufacturers of universal joints and drive shaft assemblies do feel that this type of work can be handled satisfactorily by shops that are properly equipped. This is evident by the fact that these same companies supply unwelded center assemblies and combinations in which the shop is required to cut the tubing to length to assemble the component parts and weld.

"The following outline lists in a very general way some of the things to be considered and the proper sequence of operations in cutting down a drive shaft. Of course, there are many factors which influence this procedure, such as changes in gear ratio that would affect speeds of the assembly, variations in angularity that are extreme or changes in the power requirements. If any major modifications are to be incorporated, it would certainly be wise to call upon the

[TURN TO PAGE 184. PLEASE]



|   |                          |                     |                 |
|---|--------------------------|---------------------|-----------------|
| DATE _____  | TERMINAL _____           | ENGINE NO. _____    | TRUCK NO. _____ |
| SYMBOLS: "V" INSPECTED & REINSTALLED AS "OK"<br>"R" REPAIRED<br>"O" NEW PART<br>"X" RECONDITIONED UNIT OUT OF STOCK |                          |                     |                 |
| CYLINDER SLEEVES _____  | MAKE _____               | SIZE _____          | REMARKS _____   |
| PISTONS _____   | " _____                  | " _____             |                 |
| " PINS _____  | " _____                  | " _____             |                 |
| " RINGS _____   | " _____                  | " _____             |                 |
| CYLINDER HEADS..#1 _____  | #2 _____                 | #3 _____            |                 |
| WATER PUMP _____  | LUBE OIL PUMP _____      | FUEL OIL PUMP _____ |                 |
| INJECTORS..#1 _____   | #2 _____                 | #3 _____            | #4 _____        |
| #5 _____  | #6 _____                 |                     |                 |
| STARTER _____   | MAKE _____               | VOLTAGE _____       |                 |
| GENERATOR _____   | " _____                  | " _____             |                 |
| AIR COMPRESSOR _____  | CAPACITY (CU. FT.) _____ |                     |                 |
| MAIN BEARINGS, MAKE _____   | SIZE: #1 _____           | #2 _____            | #3 _____        |
| #4 _____  | #5 _____                 | #6 _____            | #7 _____        |
| CONN. ROD " _____   | " _____                  | " _____             | #1 _____        |
| #2 _____  | #3 _____                 | #4 _____            | #5 _____        |
| Form 5425   | 250                      | L/47                |                 |

FIG. 1. Engine Form (8½ x 5 in.) is used by all terminals to indicate all repair work done on engines

## Coordinating the

# Terminal Shop with GHQ

Standardized job numbers and seven forms keep headquarters shop and accounting

### STANDARDIZED REPAIR JOB NUMBERS

1. Grease Drive Lines
2. Complete Grease Job
3. Change Oil
4. Check all gear boxes
5. Oil sample for analysis
6. Check water in batteries
7. Wash
8. Check tires for air pressure
9. Check safety Equipment. Flares, flags, fuses, 1st aid
10. Check motor for repairs
11. Check & adjust brakes
12. Change tachograph or serice recorder charts
13. Motor tuneup
14. Engine timing
15. Safety-lane inspection
16. General inspection
17. Check truck for repairs
20. Check & adjust wheel-bearings
25. Check carburetor or fuel pump
30. Shop expense
35. Check ignition system
40. Change or repair tires
50. Terminal expense
60. Terminal expense (Spokane)
61. Dock expense
65. Wrecks
66. Road Failures (show nature)
70. Claim Department—O S & D
71. Damage covered by insurance
100. Complete Engine Rebuild (Use only when engine is COMPLETELY rebuilt)
101. Valves—Grind or adjust
102. Cylinder Head & Valve assembly (Change or rebuild complete assembly)
103. Partial or minor engine overhaul. Re-ring, grind valves, check motor bearings & general engine inspection & tuneup
104. Replace cylinder sleeves and inspect or replace pistons and rings. (Engine truck)
108. Check or replace con. rod bearings
109. Check or replace con. rod shank
110. Check or replace mains
115. Check or replace crankshaft
120. Check or replace camshaft or camshaft bearings
125. Check or replace pistons, rings or pins
130. Cylinder heads (only)—remove or inst.
135. Cylinder Block
140. Crankcase
141. Oil pan
145. Manifolds
146. Mufflers
150. Timing gears
155. Fuel System (Carburetor, fuelpump, screens & injectors and controls)
160. Fuel Tanks and Lines
170. Radiator & Cooling system
175. Fan and drive assembly
180. Water pump assembly
185. Oiling system
190. Oil filters
195. Engine supports
200. Fly wheel
202. Clutch & controls
211. Main transmission
212. Auxiliary transmission
220. Drive lines & U joints
235. Front axle assembly (include steering knuckles, arms & tie rod assembly)
240. Rear axles-trucks and trailer (Show location; first or second). (include housings, radius rods, torque rods & brackets)
250. Rear axle drive units (show location—first or second)
250. Springs & fittings (show location)
300. Wheels & Bearings (show location of bearings). (show location of wheels)
302. Brakes & Controls (Service). (Repairs or reline only)
350. Brakes (Parking). (Repair, reline or adjust)
360. Brakes (Hydraulic system)
370. Brakes (vacuum system only)
380. Brakes (air system; includes all of air system from compressor to slack adj.)
390. Front axle alignment
395. Steering gear assembly (include pitman arm and drag link)
400. Frame assembly
415. General chassis overhaul
420. Trailer tongue assembly
425. Trailer fifth wheel
430. Trailer fifth wheel dolly frame
435. Tractor automatic fifth wheel
440. Tire carriers
450. Trailer hitch
500. Bodies (new)
501. Body repairs
502. Meat rails, bars & trays
505. Mechanical refrigerator units
535. Cabs, any integral part
550. Cab Accessories (Swipes, heaters, fans, turn. signal)
555. Cab instruments and gauges (Oil, air, temperature, fuel and ammeter) Speedometer & Tachograph and service recorder
560. Painting
570. Lettering, numbering & decals
580. Hood, fenders, running boards and bumpers
600. Ignition—Coil, distributor, spark plugs and wiring
650. Generator and relay
660. Starter and controls
680. Batteries and cables
690. Light, wiring & switches
694. Reflexes
695. Horns. Air or electric
700. Miscellaneous equipment: Flares, fluxes, jack, wheel wrenches, chains, shovel, sanders and license plates)

WE HAVE THREE TERMINALS where full maintenance is handled by the terminal shop. With the head-quarter's shop at Spokane, this makes four maintenance and repair shops. The case of the Portland shop is typical.

In this shop we handle all maintenance, repair, and major overhaul and rebuilding on 20 truck and trailer units, 24 truck and semi-trailer units; 4 large special built vans; and 15 terminal delivery trucks and pick-ups—63 units in all.

We have a fully equipped drive-through repair shop 60 by 85 ft., with three mechanics, one specialty repair man, two greasers who act as general servicemen, two tire men, and one shop foreman—a total shop personnel of nine.

Through the use of simplified

FIG. 2. Repair Job Numbers, posted by time clock, greatly simplify entries on time report (see list at left)



# Inland Motor Freight Truck Log N<sup>o</sup> 2645

Truck No. \_\_\_\_\_

Card In—Date \_\_\_\_\_ 194\_      Card Pulled—Date \_\_\_\_\_ 194\_

Card In at Station \_\_\_\_\_      Card Pulled at Station \_\_\_\_\_

Card In by \_\_\_\_\_      Card Pulled by \_\_\_\_\_

| From Station | To Station | Date | Time In | Time Out | No. of Miles |
|--------------|------------|------|---------|----------|--------------|
| 1            | 2          | 3    | 4       | 5        | 6            |
| 7            | 8          | 9    | 10      | 11       | 12           |
| 13           | 14         | 15   | 16      | 17       | 18           |
| 19           | 20         | 21   | 22      | 23       | 24           |
| 25           | 26         | 27   | 28      | 29       | 30           |
| 31           | 32         | 33   | 34      | 35       | 36           |
| 37           | 38         | 39   | 40      | 41       | 42           |
| 43           | 44         | 45   | 46      | 47       | 48           |
| 49           | 50         | 51   | 52      | 53       | 54           |
| 55           | 56         | 57   | 58      | 59       | 60           |
| 61           | 62         | 63   | 64      | 65       | 66           |
| 67           | 68         | 69   | 70      | 71       | 72           |
| 73           | 74         | 75   | 76      | 77       | 78           |
| 79           | 80         | 81   | 82      | 83       | 84           |
| 85           | 86         | 87   | 88      | 89       | 90           |
| 91           | 92         | 93   | 94      | 95       | 96           |
| 97           | 98         | 99   | 100     | 101      | 102          |
| 103          | 104        | 105  | 106     | 107      | 108          |
| 109          | 110        | 111  | 112     | 113      | 114          |
| 115          | 116        | 117  | 118     | 119      | 120          |
| 121          | 122        | 123  | 124     | 125      | 126          |
| 127          | 128        | 129  | 130     | 131      | 132          |
| 133          | 134        | 135  | 136     | 137      | 138          |
| 139          | 140        | 141  | 142     | 143      | 144          |
| 145          | 146        | 147  | 148     | 149      | 150          |
| 151          | 152        | 153  | 154     | 155      | 156          |
| 157          | 158        | 159  | 160     | 161      | 162          |
| 163          | 164        | 165  | 166     | 167      | 168          |
| 169          | 170        | 171  | 172     | 173      | 174          |
| 175          | 176        | 177  | 178     | 179      | 180          |
| 181          | 182        | 183  | 184     | 185      | 186          |
| 187          | 188        | 189  | 190     | 191      | 192          |
| 193          | 194        | 195  | 196     | 197      | 198          |
| 199          | 200        | 201  | 202     | 203      | 204          |
| 205          | 206        | 207  | 208     | 209      | 210          |
| 211          | 212        | 213  | 214     | 215      | 216          |
| 217          | 218        | 219  | 220     | 221      | 222          |
| 223          | 224        | 225  | 226     | 227      | 228          |
| 229          | 230        | 231  | 232     | 233      | 234          |
| 235          | 236        | 237  | 238     | 239      | 240          |
| 241          | 242        | 243  | 244     | 245      | 246          |
| 247          | 248        | 249  | 250     | 251      | 252          |
| 253          | 254        | 255  | 256     | 257      | 258          |
| 259          | 260        | 261  | 262     | 263      | 264          |
| 265          | 266        | 267  | 268     | 269      | 270          |
| 271          | 272        | 273  | 274     | 275      | 276          |
| 277          | 278        | 279  | 280     | 281      | 282          |
| 283          | 284        | 285  | 286     | 287      | 288          |
| 289          | 290        | 291  | 292     | 293      | 294          |
| 295          | 296        | 297  | 298     | 299      | 300          |
| 301          | 302        | 303  | 304     | 305      | 306          |
| 307          | 308        | 309  | 310     | 311      | 312          |
| 313          | 314        | 315  | 316     | 317      | 318          |
| 319          | 320        | 321  | 322     | 323      | 324          |
| 325          | 326        | 327  | 328     | 329      | 330          |
| 331          | 332        | 333  | 334     | 335      | 336          |
| 337          | 338        | 339  | 340     | 341      | 342          |
| 343          | 344        | 345  | 346     | 347      | 348          |
| 349          | 350        | 351  | 352     | 353      | 354          |
| 355          | 356        | 357  | 358     | 359      | 360          |
| 361          | 362        | 363  | 364     | 365      | 366          |
| 367          | 368        | 369  | 370     | 371      | 372          |
| 373          | 374        | 375  | 376     | 377      | 378          |
| 379          | 380        | 381  | 382     | 383      | 384          |
| 385          | 386        | 387  | 388     | 389      | 390          |
| 391          | 392        | 393  | 394     | 395      | 396          |
| 397          | 398        | 399  | 400     | 401      | 402          |
| 403          | 404        | 405  | 406     | 407      | 408          |
| 409          | 410        | 411  | 412     | 413      | 414          |
| 415          | 416        | 417  | 418     | 419      | 420          |
| 421          | 422        | 423  | 424     | 425      | 426          |
| 427          | 428        | 429  |         |          |              |

**FIG. 4. Log Card (above) travels with truck, is returned to holder (left) at end of each day's run. Size: 5 x 11½ in.**

**LEFT.** Author Pete Melsten points to Log Card holders at terminal shop

forms, our headquarters shop in Spokane and the headquarters accounting department both have a complete blow-by-blow account of everything that is done in our Portland terminal shop as well as in the three others.

This will be best explained by taking the forms and explaining each of them:

## Engine Form

**A**n engine form (Fig. 1) must be filled out every time we do any work on an engine. It is made in duplicate (original to accounting department, copy to home shop) and a second copy made for our own terminal file.

Across the top of the form are blanks for date, terminal, engine number, and truck number. In filling in the form we use four symbols: "V" Inspected and reinstalled as OK; "R" Repaired; "O" New part; "X" Reconditioned unit out of stock.

As will be noted it gives the whole story about the engine including over

and undersized parts, rebuilt accessories, etc.

### Job Numbers

**E**ACH terminal maintenance shop employee has a number and every possible job on a truck or trailer has a number. In all there are 98 such job numbers (Fig. 2) and their use greatly simplifies the necessary entries. These job numbers are posted by the shop time clock. Cards, of course, are the same throughout the system.

### Card

In the morning each shop employee starts out with a fresh time card (Fig.

3) which gives the man's name, his number, the date, and his hourly rate of pay. The card is ruled for description and after the line a square for the job number (obtained from the job number list posted at the time clock), a square for the unit worked on number, and a square for the on and off time clock register for the job.

Under "Description" the mechanic enters such work explanations as: "Changed transmission." "Overhauled transmission." "Overhauled rear end." or "Pulled wheels."

The original of this form goes to the accounting department.

(TURN TO NEXT PAGE, PLEASE)

## ... Terminal Shop ...

Continued from Page 59

# Monthly Service Card

EQUIPMENT NO. \_\_\_\_\_ MONTH \_\_\_\_\_ 194 \_\_\_\_\_

Change oil every \_\_\_\_\_ miles Change rear ends and trans. every 30,000 miles

Change neck every \_\_\_\_\_ miles Test oil every \_\_\_\_\_ miles

| Date | Trip Miles | Greaser Drive Line—Rear End & Transmsh | Complete Grease Job | Oil Test | Change Oil | Change Filter Sock | Change Rear Ends & Trans. |
|------|------------|--|---------------------|----------|------------|--------------------|---------------------------|
|------|------------|--|---------------------|----------|------------|--------------------|---------------------------|

Miles Bought Ford's Since Last Service

|    |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|
| 1  |  |  |  |  |  |  |  |
| 2  |  |  |  |  |  |  |  |
| 3  |  |  |  |  |  |  |  |
| 4  |  |  |  |  |  |  |  |
| 5  |  |  |  |  |  |  |  |
| 6  |  |  |  |  |  |  |  |
| 7  |  |  |  |  |  |  |  |
| 8  |  |  |  |  |  |  |  |
| 9  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |
| 21 |  |  |  |  |  |  |  |
| 22 |  |  |  |  |  |  |  |
| 23 |  |  |  |  |  |  |  |
| 24 |  |  |  |  |  |  |  |
| 25 |  |  |  |  |  |  |  |
| 26 |  |  |  |  |  |  |  |
| 27 |  |  |  |  |  |  |  |
| 28 |  |  |  |  |  |  |  |
| 29 |  |  |  |  |  |  |  |
| 30 |  |  |  |  |  |  |  |
| 31 |  |  |  |  |  |  |  |

Bring Miles Forward Since Last Service

Tot. Miles This Mo.

Total Miles Best Ford's from Last Mo.

Forwarded Total Miles

SAE J-41—1-12-55—Form 1311  
©1957 Ford F-48

Take inventory 1 to Spokane Immer

NEW

| Brand No. | Size | B |
|-----------|------|---|
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |
|           |      |   |

## WHEEL BEARINGS INSPECTED

| DATE      | FRONT | REAR | CV. REAR |
|-----------|-------|------|----------|
| Forwarded |       |      |          |
| Rein      |       |      |          |
| By        |       |      |          |

**FIG. 5. (left) Monthly Service Card stays with each unit for one month, indicates complete lubrication details**

**FIG. 6. (below) Tire Inventory sheet shows tires and tubes on hand at end of each month. Size: 8½ x 11 in.**

[illegible]

turns to the top of the unit's equipment list at the top of the card. These must be checked every time the unit is in the shop. The mechanic doing the checking must sign with his initials, also initial driver's "Cry."

At the end of each month, log cards are pulled and sent in to the headquarters accounting office.

We make a copy for our own terminal file each evening before the original goes in to Spokane.

### Log Cards

**E**ACH driver who checks in or through our terminal has a pigeon-hole for his log card holder. Units with trailers have two log cards, one for the truck and one for the trailer. (Fig. 4) The log cards provide a special place for driver complaints or okays.

As soon as a log card holder is filed, one of the terminal mechanics gets the card and starts with the "Crys," completes them first and then

**FIG. 8. Drivers Daily Payroll Voucher (8 x 5½ in.) gives usual details plus explanation of stops indicated by tachograph, installed on all units**

| <u><b>INLAND MOTOR FREIGHT TIME REPORT</b></u> |                         |                    |                    |                        |                   | No.                       |
|--|-------------------------|--------------------|--------------------|------------------------|-------------------|---------------------------|
| <u><b>STATION</b></u>                          |                         |                    |                    |                        |                   |                           |
| <u><b>DATE</b></u>                             | <u><b>BRAND NO.</b></u> | <u><b>MAKE</b></u> | <u><b>SIZE</b></u> | <u><b>UNIT NO.</b></u> |                   | <u><b>EXPLANATION</b></u> |
|  |                         |                    |                    | <u><b>ON</b></u>       | <u><b>OFF</b></u> |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |
|  |                         |                    |                    |                        |                   |                           |

Send to Spokane as soon as report is filled and always the first of each month.

**Form 5511 10/16 2M**

**FIG. 7. Tire Report shows all changes made during month enabling headquarters to keep track by brand numbers**

### Monthly Service Card

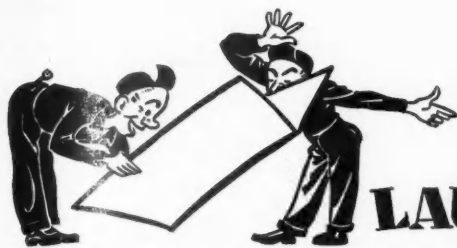
**NEXT**, we have a monthly service card for each truck and trailer (Fig. 5) which is kept with the unit until the end of the month. At the top, it shows the mileage requirement between oil changes, filter sock changes, oil test and a rear end and transmission changes (required each 30,000 miles) for the particular unit.

The monthly service card shows the total mileage brought forward from the previous card. It gives a line for each day of the month and on this line column dividers for: trip miles; grease job for drive line, rear end, and transmission; complete grease job; oil test; oil change; filter sock change; and rear end and transmission change.

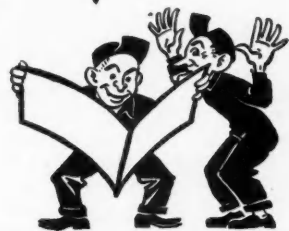
At the bottom of the card is a column for miles brought forward.

(TURN TO PAGE 122, PLEASE)

| <b>DRIVERS DAILY PAYROLL VOUCHER</b>  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|---|---------------------|---------------------------------|------|--------|---|--|----------|-----------|-------------|--------------------------|------------------------|--|------|------|--------|------------------------------|--|--|--|--|--------------------|--|--|--|--|------------------|--|--|--|--|---------------------------|--|--|--|--|---------------|--|--|--|--|
| Explain ALL stops fully. If freight is loaded or unloaded, total weight handled MUST be shown.  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| DRIVER _____  | TRUCK LOG NO. _____ |                                 |      |        | TRAILER LOG NO. _____   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| TRUCK AND TRAILER _____   | FROM _____          |                                 |      |        | MILES _____   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| LEAVE—DATE _____  | A M<br>P M          | ARRIVE—DATE _____               |      |        |   | A M<br>P M DRIVING TIME ONLY _____   |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| TRUCK AND TRAILER _____   | FROM _____          |                                 |      |        | MILES _____   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| LEAVE—DATE _____  | A M<br>P M          | ARRIVE—DATE _____               |      |        |   | A M<br>P M DRIVING TIME ONLY _____   |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| Use all four lines above only on turnaround trips.<br><b>EXPLANATION OF STOPS—(USE ONLY FOR OVERTIME CLAIM)</b>   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| PLACE   |                     | EXPLANATION (EXPLAIN IN DETAIL) |      |        |   | WEIGHT   | TIME OUT | WORK TIME | REPAIR TIME | TOTAL MILES<br>TIME WAIT |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
|   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>TOTALS</b>   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>LAYOVER TIME</b>   |                     | <b>DEADHEAD TIME</b>            |      |        |   | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;"><b>OFFICE USE ONLY</b></th> <th style="text-align: center; padding: 2px;">TIME</th> <th style="text-align: center; padding: 2px;">RATE</th> <th style="text-align: center; padding: 2px;">AMOUNT</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="padding: 2px;"><b>DRIVING AND WORK TIME</b></td> <td></td><td></td><td></td> </tr> <tr> <td colspan="2" style="padding: 2px;"><b>REPAIR TIME</b></td> <td></td><td></td><td></td> </tr> <tr> <td colspan="2" style="padding: 2px;"><b>WAIT TIME</b></td> <td></td><td></td><td></td> </tr> <tr> <td colspan="2" style="padding: 2px;"><b>LAYOVER OR DN TIME</b></td> <td></td><td></td><td></td> </tr> <tr> <td colspan="2" style="text-align: right; padding: 2px;"><b>TOTALS</b></td> <td></td><td></td><td></td> </tr> </tbody> </table> |          |           |             |                          | <b>OFFICE USE ONLY</b> |  | TIME | RATE | AMOUNT | <b>DRIVING AND WORK TIME</b> |  |  |  |  | <b>REPAIR TIME</b> |  |  |  |  | <b>WAIT TIME</b> |  |  |  |  | <b>LAYOVER OR DN TIME</b> |  |  |  |  | <b>TOTALS</b> |  |  |  |  |
| <b>OFFICE USE ONLY</b>  |                     | TIME                            | RATE | AMOUNT |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>DRIVING AND WORK TIME</b>  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>REPAIR TIME</b>  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>WAIT TIME</b>  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>LAYOVER OR DN TIME</b>   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>TOTALS</b>   |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| PLACE _____   | A M<br>P M          | FROM _____                      |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| ARRIVE—DATE _____   | A M<br>P M          | TO _____                        |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| LEAVE—DATE _____  | P M                 | DATE _____                      |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| ELAPSED TIME _____  |                     | TRUCK _____                     |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| TIME OUT _____  |                     | DRIVER _____                    |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| NET LO  |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| CHECKED BY _____  |                     |                                 |      |        | <b>REMARKS</b><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div> |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |
| <b>STATION</b><br>Make out in triplicate. Retain third copy and deliver other two copies to foreman or dispatches at end of run. Voucher must be signed by foreman or dispatcher at end of trip before payment will be allowed. Driving time is driving time only. Work time is time spent loading or unloading only. Repair time is time spent repairing vehicle. Wait time is spent waiting. Time out is all time used for eating or resting and must not be included in any other time. If more space is needed for explanation use back of voucher. |                     |                                 |      |        |   |  |          |           |             |                          |                        |  |      |      |        |                              |  |  |  |  |                    |  |  |  |  |                  |  |  |  |  |                           |  |  |  |  |               |  |  |  |  |



## LAUGH IT OFF



Mechanic to Domestic Relations Judge: "We were happy for over a year, Your Honor, and then—the baby came."

Judge: "Boy or girl?"

Mechanic: "Girl—she was a blonde and moved in next door."

CCJ

"Doctor," said the freight checker, "my trouble is my dreams. I always dream the same thing—about a girls' dormitory and the girls are running from room to room lightly clad."

"Ah yes—and you want me to make you stop dreaming about the girls?"

"NO, NO—all I want you to do is make them stop slamming the door."

CCJ

Stenographer Sue: "I'm going out with one of our mechanics tonight."

Stenographer Lou: "What's the difference, so long as he's healthy?"

CCJ

TRUCK DRIVER: "I'LL HAVE ONE OF YOUR DOLLAR DINNERS, PLEASE."

WAITRESS: "ON RYE OR WHOLE WHEAT?"

CCJ

Parts Clerk: "The forest stretched out on all sides of me. I raised my rifle; it went off with a loud bang, and there in a nearby clearing lay a dead bear."

Sweet Patootie (innocently): "How long had it been dead?"

CCJ

Ham: "What is the difference between a mosquito and a fly?"

Bone: "I dunno. What is the difference between a mosquito and a fly?"

Ham: "You can't sew a zipper on a mosquito."

CCJ

FLIRTY: "CAN YOU DRAW?"

GERTIE: "YES, A LITTLE."

FLIRTY: "THEN DRAW A LITTLE CLOSER."

CCJ



"The boss hangs that on a guy as a subtle hint when he gets sloppy in his job."

The mechanic and his helper were swapping tales of their respective hunting exploits. "Once I was hunting lions in Africa and discovered a lion standing 20 feet away and didn't have my gun," said the helper. "The lion kept coming closer and closer until he was only five feet away."

"What happened?" asked the mechanic. "He leaped up at me and killed me."

"What do you mean, he killed you?" replied the mechanic. "You're on the job here very much alive."

Replied the helper, as he unscrewed the plug from the crankcase, "You call this living!"

CCJ

Helper Driver: "Boy, get your foot out of the carburetor a little. Ain't you afraid you'll lose control of this rig at such high speed?"

Gypsy Trucker: "Constantly, my fellow cowboy, constantly. I'm three instalments behind already."

CCJ

First Trucker: "What kind of tractor is that you got there?"

Second Ditto: "Oh, that's my new hashmobile. It's got an Autocar frame, a Mack top, a White motor and an International body."

First Trucker: "Where in the world did you get it—at a used commercial vehicle lot?"

Second Ditto: "Nope—at a railroad crossing."

CCJ

City Driver: "Waitress, there's a fly in my soup."

Waitress: "Be careful sir, our food is so full of vitamins he may attack you."

CCJ

The safety director had been called on the carpet by the president of Fleety-Fleet Motor Express. He sat patiently waiting for his dressing-down while the big boss ranted into the telephone at another of his hirings. As he slammed down the receiver, the safety director remarked, "If you're not careful you'll get ulcers."

The president snapped back, "I don't get ulcers. I give them."

CCJ

Rate Clerk: "Tell me, John, who is the boss at your home?"

Bill Clerk: "Well, my wife bosses the children, and the children boss the dog and cat, but I can say anything I want to the petunias."

CCJ

Hubby: "I knew an artist who painted a cobweb so artistically that the maid spent several hours trying to get it down from the ceiling."

Wifey: "I just don't believe it."

Hubby: "Why not? Artists have been known to do such things."

Wifey: "Maybe so, but not maids."

The road driver stopped at a small drive-in and ordered coffee. Just to be polite, he said: "Looks like rain, doesn't it?"

"Well," snapped the testy proprietor, "It tastes like coffee, doesn't it?"

CCJ

HER DRESS WAS TIGHT, SHE SCARCE COULD BREATHE;

SHE SNEEZED ALOUD, AND THERE STOOD EVE.

CCJ

City Driver (to other drivers lined up awaiting their turn at the delivery dock of a large department store): "Would you fellows mind very much to let me pull in and unload ahead of you? I've just been notified that my wife is seriously ill."

CCJ

A beggar stopped a fleet operator and asked for a few cents for food. The fleet operator turned to him and said: "Why should I give you any money, and what brought you to this plight?"

"A terrible catastrophe," the beggar replied. "Two years ago, like you, I worked industriously and enjoyed business prosperity. On the wall above my desk was the motto: 'Think Constructively, Act Decisively.' And then . . ."

"Yes, and then?"

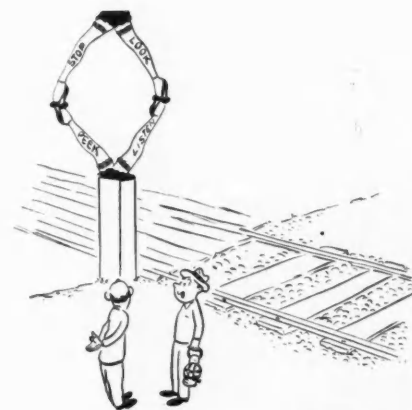
The beggar's frame shook convulsively. "The scrub lady burned my motto."

CCJ

Garage Operator: "When you were hired, you told me one reason you were such a good mechanic was that you never got tired. This is the third afternoon I've come into the shop and found you asleep."

Mechanic: "Yes, sir. That's how I never got tired."

### Resume Work



Michael Beck

"Ain't had an accident here since it's been up!"



**VEHICLE OPERATORS REPORT**

|                                   |                                 |   |   |
|-----------------------------------|---------------------------------|---|---|
| JAN <u>14</u>                     | LOCATION <u>St. Albans, Vt.</u> | MTC. <del>CORPORATION</del> FOREMAN <u>John Doe</u> | Stencil A-900-C<br>CAR NO. <u>15D10</u> |
| SPEEDOMETER READING: <u>71.55</u> |                                 | <u>12/14 OF Jan. 1988</u>                           |   |

| DATE<br>OF MONTH | ESTIMATE JOB OR ACCOUNT |               |               |               |            | MILEAGE    | GASOLINE      | OIL          | GARAGE<br>TOTAL<br>AND<br>STORAGE | TIRE<br>AND<br>TUBE<br>REPLACE-<br>MENTS | TIRE<br>AND<br>TUBE<br>REPAIRS | ORDI-<br>NARY<br>PAINT-<br>ING | BODY<br>REPAIRS<br>AND<br>PAINT-<br>ING | REPAIRS<br>DUE TO<br>ACCIDENTS | GARAGE<br>SERVICE | MISCELLANEOUS |
|------------------|-------------------------|---------------|---------------|---------------|------------|------------|---------------|--------------|-----------------------------------|--|--------------------------------|--------------------------------|---|--------------------------------|-------------------|---------------|
|                  | Est.<br>Job #           | Est.<br>Job # | Est.<br>Job # | Est.<br>Job # | MIS. TOTAL |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>1</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>2</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>3</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>4</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>5</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>6</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>7</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>8</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>9</u>         |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>10</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>11</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>12</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>13</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>14</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>15</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>16</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>17</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>18</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>19</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>20</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>21</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>22</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>23</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>24</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>25</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>26</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>27</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>28</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>29</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>30</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| <u>31</u>        |                         |               |               |               |            |            |               |              |                                   |  |                                |                                |   |                                |                   |               |
| TOTAL            | <u>14</u>               | <u>16</u>     | <u>9</u>      | <u>9</u>      | <u>67</u>  | <u>115</u> | <u>984.52</u> | <u>11.29</u> | <u>7</u>                          | <u>.35</u>                               | <u>2.50</u>                    | <u>.75</u>                     | <u>1.75</u>                             |                                | <u>1.25</u>       |               |

TOTAL BOOKS WHICH USED: None      REMARKS: (2) Check water pump and replace fan belt - Labor \$0 Parts 1.65

PREPARED BY: JW B Smith      (3) Tuber Repair (4) Grease Job

[illegible]

# Scattered Fleet

## Control System Promotes Driver Competition

**A periodic breakdown of individual truck records, arranged in order of ascending cumulative costs, spurs district supervisors and individual drivers to maximum truck operating efficiency**



R. O. Schumacher



**R. O. Schumacher**

**V**ERY LITTLE SPACE in motor vehicle publications and little time in motor vehicle group discussions have been given to the widely scattered fleet. However, there are many fleets of this kind in operation and I feel it is about time we fellows with similar problems compared notes.

The following discussion is limited to field operating costs and control because this is one of the most difficult parts of a motor vehicle supervisor's job in handling a scattered fleet. Of course there are all sorts of other problems, but, again, most of them have been very ably covered in other presentations.

Great strides have been made in the development of more efficient methods of vehicle maintenance, with

highly trained shop personnel using the latest models of technical equipment, but the motor vehicle supervisor with a scattered fleet must be content without such luxuries. His fleet is not sufficiently centralized to warrant the expense of such equipment; or even, in most cases, any shop at all.

The most essential part of the scattered fleet supervisor's program is, I believe, his operating cost records. These must be kept up to date and *accurate*. And here let me repeat *accurate*. An inaccurate record is worse than no record at all. Most of us make enough errors in judgment without assistance from a false set of figures.

**Vehicle Report with Expense Acct.**  
FIG. 1, "Vehicle Operator's Report," is a report of expenditures incurred by the driver. It is prepared

by him and forwarded semi-monthly through lines of organization to headquarters for accounting purposes.

As will be noted in the sample shown (Fig. 1) space is provided for entering the job data in which the vehicle has been used (this is primarily for inter-departmental book-keeping purposes). There are also columns for entering each of the various types of expenditures incurred. Entries of a repair or general expense nature are supported in each case by footnotes.

This report should be attached to the driver's expense statement so that comparison can be made with his expense report to make certain that charges reported are in agreement. This is important to insure accuracy. Years of experience have taught us that the only way to assure accurate reporting of vehicle expense is to compare the vehicle report with the

**FIG. 3 (above) Shop Order codes work. Reverse side shows time and parts**

**FIG. 4 (below) Headquarters expense ledger provides recap of mileage and costs for each vehicle, forms basis for most interesting form, the Vehicle Performance Report shown in Fig. 5 Ledger size: 22½ x 13½; all other forms, 11 x 8½ in.**

**FIG. 5 In periodic Performance Report, vehicles are arranged in order, lowest cumulative cost per mile first**

**by RALPH O. SCHUMACHER\***

**In charge of Motor Vehicle Operation  
Eastern Division, Western Union  
Telegraph Co., New York**

employee's disbursement report upon which he is reimbursed for moneys expended. You can rest assured this latter report will contain all expenditures in connection with the operation of the vehicle.

## Shop Records

FIG. 2 shows a method of keeping a log of gasoline or oil stocks which may be purchased in bulk at larger cities where several vehicles are garaged at the same location. This form is kept at headquarters. Stock items are billed to and paid from headquarters and posting of supplies

purchased is made from the bills when passed for payment. Similar stock logs for other stock items may be set up as required. This form serves two purposes. It provides a stock control and an accurate means of charging each vehicle with the material used. For example, the stock item shown on the sample "Vehicle Operator's Report" would be priced

\* Adopted from a paper presented by the author at the First Annual Seminar in Problems and Policies of Motor Vehicle Fleet Management and Safety Supervision, Center of Safety Education, New York University, Nov. 18, 1948.

as indicated on the stock control form, and the vehicle charged accordingly at the time the other expense is posted at headquarters.

Invoices covering centralized purchases at headquarters are charged direct to the vehicles involved at the time such invoices are passed for payment.

A repair shop can be fitted into the scattered fleet plan if so desired. Fig. 3 provides a simplified method of accumulating charges from the shop for headquarters recording. A shop in a scattered fleet plan will ordinarily be a small hand tool operation because of the limited concentration of vehicles. However, a metropolitan area operating a vehicle pool might well justify such a set-up. The operation of a shop of this kind should be kept as simple as possible. Parts should be ordered for each individual

(TURN TO PAGE 111, PLEASE)

# FREE PUBLICATIONS



**USE POSTCARD—NO STAMP NEEDED**

A selected list of the latest literature—catalogs, pamphlets, charts—chosen to help fleetmen improve operation and maintenance

## L189. Engine Valves

Here is a booklet all fleetmen will want. Entitled "The Diagnosis of Engine Valve Failures," the booklet is devoted to classifying various types of valve failures, listing possible causes and pointing out where the correction can be made. Actual photographs of common failures by comparison help the operator diagnose his own failures so that corrective measures can be applied.

This treatment is unique in that it discusses only the most important and most neglected elements of maintenance, without stressing the actual servicing procedures. A ready reference chart of failures, causes and corrections accompanies the text.

Truly a necessary maintenance guide for every shop, this booklet may be obtained by writing L189 on the free postcard.

## L190. Truck Manual

Seventy-two pages filled with valuable information and data on the motor truck industry are ready for fleet distribution in the form of a new vest-pocket-size booklet.

Theme of the booklet is improved performance with 1½ to 3-ton trucks with proper equipment. Featuring the use of auxiliary transmissions, this booklet shows what can be done to improve truck performances by modifying tires, brakes, axles, frames, springs, transmissions, etc.

In addition, timely trucking data is given in the booklet. Some of the data includes formulas for figuring load distribution, standard tire data, list of commodity weights, miscellaneous tables of weights and measures, and a list of engineering definitions.

This booklet is a technical "course" in itself. Write L190 on the free postcard for a copy.

## L191. Hydraulic Drive

This is a 12-page publication devoted to the description of the development, application and lubrication of the White Hydro-Torque Drive. A study of this material should be of much value to fleetmen and mechanics.

The drive is a combination of fluid coupling, a single-stage hydrokinetic torque converter and an automatic two-speed synchromesh transmission. The author lists this type as one of the simplest yet most efficient types in current commercial usage.

Interesting graphs are provided to show general efficiency characteristics of the fluid coupling compared with a single-stage hydrokinetic torque converter as well as the combined installation represented with the White unit. Pictures and cut-away views help to show how each part operates.

Another section of the book covers the operation of the electro-pneumatic system controlling the high-low transmission shift, with diagrams provided to trace the flow of power. And finally, the author takes up the lubrication of the unit.

This valuable material is yours for the asking. Write L191 on the free postcard.

## L192. Protective Coatings

A new 12-page folder which gives expert direction on the application of

cold-applied protective coatings, especially designed to prevent corrosion and deterioration, is available to the fleet field.

The informative material describes protective coatings, as well as giving general information on surface preparation, coating thickness, and methods of application. The various types of protective coatings for cold application are described in detail, together with information on coverage, primers needed if any, drying time, thinners that can be used, and temperature limits.

Copies of the folder may be obtained by writing L192 on the free postcard.

## L193. Freight Claim Book

The Freight Claim Section of the American Trucking Association, Inc., has announced a revised edition of the Motor Carrier Freight Claim Rule Book as available for distribution.

The new book includes all changes approved by ATA's Freight Claim Council and has been enlarged to embrace supplemental material, including suggested procedures for efficient claim handling and handling of refused and unclaimed shipments.

Other new features include a recommended over, short and damaged system, recommended procedure for maintaining a claims register, suggestions to shippers and consignees as to packing, marking, preparation of bills of lading, etc.

Write L193 for a free copy.



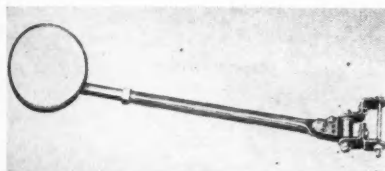
# NEW PRODUCTS

USE POSTCARD—NO STAMP NEEDED

The newest in replacement parts, accessories, shop equipment, supplies—illustrated and described in brief for the fleetman

## P53. Universal Mirror

The Delbar mirror features a wider and thicker elbow joint to eliminate vibration. Hardened hinge bolts with two set screws, placed at wide angles to give position-looking on the hinge, are used. Three holes permit selection of base positions from horizontal up to 45 deg. A wide range of adjust-



ments enables this unit to fit hinges from 1 1/4 in. to 4 in. Delbar Products, Inc., Perkasié, Pa.

## P54. 1/2-in. Drill

Thor 7-lb portable electric 1/2 in. "Silver Line" drill designed for continuous, stall-free drilling. Free speed is 500 rpm. Features full ball-bearing construction, removable dead handle, steel bearing inserts, removable switch handle for simple service, precision gearing, 3-jaw Jacobs key type chuck. Length is 11 in. Independent Pneumatic Tool Co., Aurora, Ill.

## P55. Piston Ring Set

Piston ring set, engineered around a top compression ring made of K-Spun metal.

New metal won't break during installation or in service, has 50 per cent more "spring" quality and four times the resistance to combustion

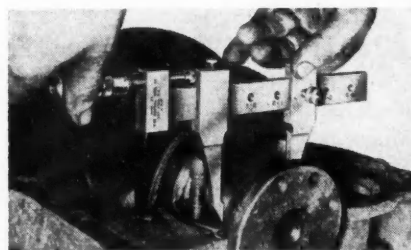
shock, it is stated. The new set of rings keeps flame in the combustion chamber and keeps oil out of it. Permits high unit pressures. Koppers Co., Inc., Baltimore, Md.

## P56. 90-Cu Ft Compressor

A new tank-mounted air compressor with a piston displacement of 90 cu ft per min, Model F-390, is two-stage air-cooled driven by a 15 hp electric motor with multiple V-belt drive. Features include aluminum cylinders and heads, Timken main bearings, Lynite rods, patented loadless starting and positive pressure lubrication. Rubber mounting is employed between compressor and tank. A new tank drain at the end of the tank is provided. The Quincy Compressor Co., Quincy, Ill.

## P57. Micrometer

Main journal micrometer No. 510 MBM permits accurate measurement of crankshaft main journals without

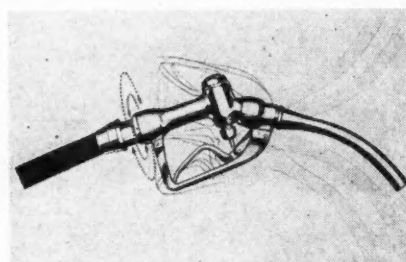


removing the crankshaft from the engine. Reads directly in thousandths of an inch over its entire range from 0 to 5 in., and measures journal wear or out-of-round.

Measuring points are hardened and ground and the graduations are clearly marked and easy to read. Adapted for checking many other parts. The Central Tool Co., Cranston, R. I.

## P58. Swiv-L-Nozzle

The Bennett Swiv-L-Nozzle designed to make gasoline fills faster and with less effort. Self-adjusting seal prevents gas leakage at swivel. All swivel parts are stainless steel.



Chrome plated brass nozzle. Service Station Equipment Co., Muskegon, Mich.

## P59. Vapor Proof Switch

A vapor proof push-pull switch adapted to use on tank trucks carrying gasoline, fuel oil, alcohol and other inflammable or explosive liquids. Body of switch is sealed to prevent vapors from entering switch chamber and being ignited by the spark formed when switch is thrown. Cole-Hersee Co., Boston, Mass.

## P60. Wheel Lock

The Mico No-Stuk, an electrically controlled valve that holds the hydraulic brake fluid in the brake line of either right or left rear wheels as selected. It does not lock the brakes or both rear wheels simultaneously.

(TURN TO NEXT PAGE, PLEASE)

# NEW PRODUCTS

USE POSTCARD-NO STAMP NEEDED

(Continued from Page 57)

When stuck, and one wheel is spinning, the driver holds the dash switch in the direction of the spinning wheel and depresses the brake pedal. This locks the brake fluid in the spinning wheel so that it will not dig itself in and when clutch is again engaged, diverts power into the wheel that is on firm ground. Installation is simple. Mounted by means of a single bolt and a mounting clamp. Minnesota Automotive, Inc., Minneapolis, Minn.

## P61. System Filter

Cooling system filter, chemically-activated, said to eliminate radiator, block cleaning and rodding costs.



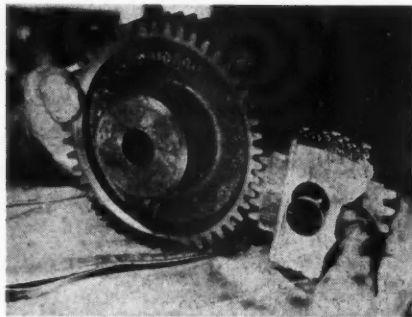
Cleans both block and radiator of lime, rust, scale and dirt and filters it out of the system. Said to make use of inhibitors and cleaning compounds unnecessary. Spring and fall replacement of filter element is sufficient for effective results. Hove Spark-O-Liner Corp., Minneapolis.

## P62. Gear Gage

Stainless steel gear gage with 20 deg pressure angle full depth tooth form 3, 4, 5, 6, 8, 10, 12, 16, 20, 24,

32, 48—and stub tooth forms  $\frac{3}{4}$ ,  $\frac{4}{5}$ ,  $\frac{5}{7}$ ,  $\frac{6}{8}$ ,  $\frac{8}{10}$ ,  $\frac{10}{12}$ ,  $\frac{12}{14}$ ,  $\frac{16}{21}$ ,  $\frac{20}{26}$ ,  $\frac{24}{32}$ ,  $\frac{32}{42}$ ,  $\frac{48}{64}$ .

The stub tooth is a combination of the pitch on the pitch line and the depth of the tooth, for example a



stub tooth 8/10 pitch has a pitch of 8 while the depth of tooth is that of a 10 pitch gear. The George Scherr Co., New York, N. Y.

## P63. Air Compressor

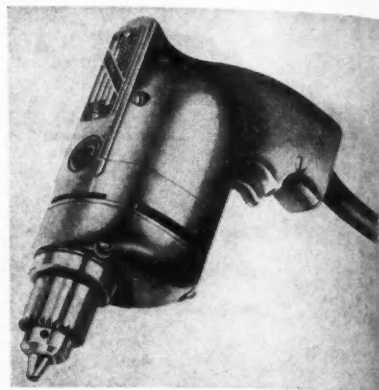
A vertical air compressor with the tank upright and the motor and air compressor unit mounted on top. Model 25-V, has a 20 gal tank with a  $1\frac{1}{2}$ -cu ft per min air displacement; model 50-V has a 30 gal tank and displaces 2.7 cu ft of air per min; and model 75-V has a 30-gal tank displacing 4.07 cu ft of air per min. The Grimes Co., Dallas, Tex.

## P64. All Purpose Body Holding Fixture

A new type of equipment for body men called Reck-Rack to hold cumbersome and unwieldy body sections while welding. Offers convenience, rigidity, compactness, portability and accessibility. It rigidly holds any size or any shape of body section in any convenient position or at any convenient height for all roughing and finishing jobs. Blackhawk Mfg. Co., Milwaukee, Wis.

## P65. Hole Shooter

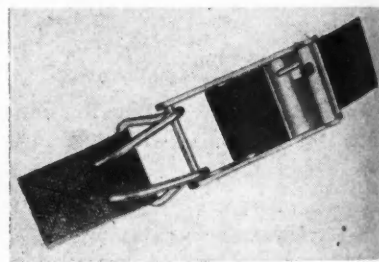
New and improved "Hole-Shooter" available in three different drill size capacities and five different rated speeds  $\frac{3}{8}$  in. at 650 rpm,  $\frac{5}{16}$  in. at 1000 rpm, and  $\frac{1}{4}$  in. at 2000, 3500, and 5000 rpm.



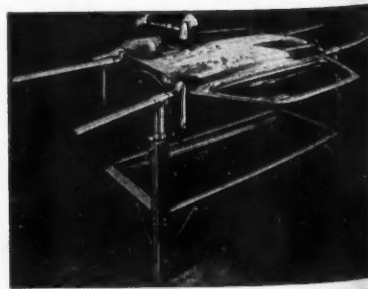
Equipped with ac or dc universal type motors for standard 115 volt current. Jacobs chucks standard equipment. Tool housings are streamlined and cast from high-grade aluminum. Average net weight  $3\frac{1}{2}$  lb. The Milwaukee Electric Tool Corp., Milwaukee, Wis.

## P66. Cargo Load-Set

The Load-Set WebLock for safely securing loads comes equipped with Type III heavy-duty webbing in any



required length; also with the necessary end fittings to accommodate rings, hooks, or bars. The Load-Set WebLock can be pulled to any de-



sired tension within the limits of the operator, with no backlash. Unit provides a mechanical advantage of 2 to 1. Pacific Airmotive Corp., Burbank, Cal.

### P67. Impact Tool

A larger model of the all-purpose electric impact tool. With standard accessories it will run and remove

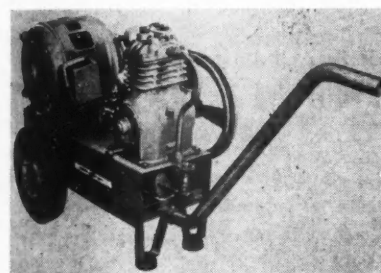


nuts up to  $\frac{5}{8}$  in. thread size, tap, and ream.

The new tool is  $12\frac{1}{8}$  in. in length and weighs 9 lb 13 oz. Available for either 110 volt or 220 volt current and runs on either ac or dc. Ingersoll-Rand Co., New York, N. Y.

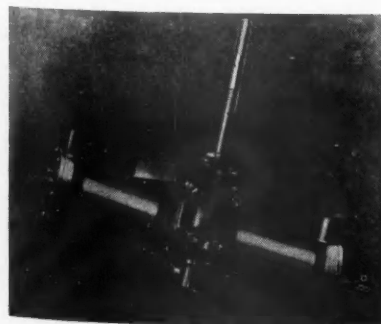
### P68. Air Compressors

Portable compressors, one for use with motors ranging from  $\frac{1}{3}$  to  $\frac{1}{2}$



hp, the other for use with motors ranging from  $\frac{1}{2}$  to  $1\frac{1}{2}$  hp, recently added to the line of Black Mfg. Co., Baltimore, Md.

### P69. Heavy Duty Wiper Air Motor



### P70. Vapor-proof Lamps

KD 520 recessed-type, flush mounting, clearance marker Lamp, representative of the majority of K-D standard units which will be available with vapor proof fittings. Lamps are provided with fittings, so that copper tubing conduits can be attached to any length needed in which the wires can be positively protected. Eliminates the hazard of ignition of gas fumes on gasoline trucks caused by short circuit spark where worn



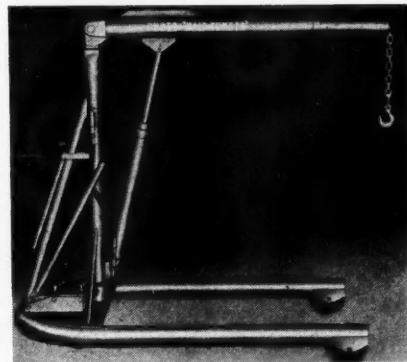
wires are exposed to other metal truck parts. K-D Lamp Co., Cincinnati, Ohio.

### P71. Valve Refacer

The "99" Valve Refacer, designed for precision, wet grinding. Equipped with a double-grip collet and new speed chuck for fast refacing at all standard angles. Extra heavy construction, automatic bearing compensation at critical points of wear. Sliding heads feature three-point suspension on hardened and ground slide rods. Double-grip collet is hardened, ground and internally lapped, gear driven by its own individual motor. New speed chuck permits even large butt-end valves to be admitted and released with only one turn of the hand wheel. The Independent Pneumatic Tool Co., Aurora, Ill.

### P72. $\frac{1}{2}$ -Ton Crane

Half-ton hydraulic floor crane featuring a double-acting pump, Timken-bearing equipped floor wheels



and closed hydraulic system. A self-contained telescoping boom extension is standard equipment. Ruger Equipment Co., Inc., Cleveland, Ohio.

### P73. Work Bench

A heavy-duty steel work bench made with 11 gage prime steel top and 13 gage prime steel channel type legs. Bench is 32 in. high, 28 in. wide, and 2 in. long, and weighs 150 lbs. Reinforced with cross members for added strength. Tri-State Metal Products, Inc., Pittsburgh, Pa.

### P74. Syncrograph

Model E-316-HD Syncrograph features a constant torque drive; a motor-driven, high-capacity vacuum pump; a sensitive, aircraft-type vacuum gage calibrated to measure dis-



tributor adjustments in one-half tenths; a new specification scroll indexed by vehicles; and a new universal Ford fixture that handles all models of Ford, Lincoln and Mercury. Allen Electric and Equipment Co., Kalamazoo, Mich.

(TURN TO PAGE 136, PLEASE)





*H. H. Goff (left) of Mistletoe Express receives plaque from Leslie J. Sorenson in recognition of company's six successive winners in intercity truck division and current 3,716,000 miles with but two accidents.*

**by RANDALL R. HOWARD**

CCJ Special Correspondent

THE ONE QUESTION most prominent during the recent meeting in Chicago of the Commercial Vehicle Section of the 36th National Safety Congress was this: "What practical steps can a trucking operator take to get and keep safe drivers?"

The six half-day sessions were attended by representatives of several hundred motor vehicle fleets of United States and Canada. There were numerous well-qualified speakers and much general discussion. In the total, this 36th Annual Safety Congress and Exposition was considered the most comprehensive in scope and largely attended ever held, with 565 listed Congress speakers for the many meetings distributed among five of the largest city hotels.

The general safe-driver problem before the Commercial Vehicle sessions included the following specific inquiries:

1. How practicable are driver selection tests?
2. How to train selected drivers?
3. How to apply driver training to high-frequency accidents?
4. Relationship of top company management to safe driving?

Some answers come at the first session, which drew the largest at-

tended with the single exception of the final National Fleet Safety Contest Award luncheon. It was a joint meeting with one of the newest of the National Safety Council groups, the Transit Section, for operators of Motor Bus, Electric Railway and Trolley Bus, and Railway and Trolley.

The novelty of this joint meeting was display and demonstrations of actual-use mechanical equipment for driver testing and training. The first demonstration was the "American Transit Motor Ability Test" for selection of bus and street car drivers or operators. Such tests have been in use for 10 to 20 years by different large transit companies of Pittsburgh, Cleveland and Milwaukee. For the test the applicant is placed in a model bus driving seat with steering wheel, gear shift lever and two foot pedals. His responses to different pattern color flashes on a signal board controlled by the examiner are automatically recorded. The required responses have been made different from any actual driving experience, in order to measure "specific traits" assumed essential to good and safe driving. These traits are listed as teachability; learning capacity; attention qualities; reaction qualities;

# Getting and K

**Fleetmen at National Safety Congress**

volitional sensori-motor coordination adaptability.

Glen U. Cleeton, consultant, American Transit Assn., advised that such a test be supplemented by others commonly used, including initial interview, submitted references, road or operations performance, and evidences of character reliability and sociability. However, he stated that "motor abilities and skills," among all tests, are the most subject to mechanical measurement.

Merwyn A. Kraft, director, Dept. of Personnel and Accident Prevention, American Transit Assn., explained that in actual use this test requires about 45 minutes, including applicant instructions and preliminary practice. The present test rating standards are based on 800 guide tests of experienced operators; and there was reported good follow-up results to aid in the selection of applicants which have been demonstrating better-than-average safety records. Audience questions brought out that the set-up cost of the exhibited equipment is about \$5000; but it was stated that, through the use of such equipment, one large company now was saving \$2200 a month in lessened training costs and they also assumed large savings from costs of accidents.

**Neyhart Lists 12 Tests**

**AMOS E. NEYHART**, A.A.A. consultant and Administrative head of the Institute of Public Safety, Pennsylvania State College, also staged a display of the more simplified battery of mechanical units in use by many trucking companies for

# d Keeping Safe Drivers

ress discuss practicability of selection tests, training and management responsibility

nation psycho-physical driver tests. He began his talk by repeating a new definition of a psychologist—"an individual who tells you things you already know, but in a manner which confuses the hell out of you.

Amer- He said that psychological tests will never take the place of other standardized employee selection procedures. They were called "an additional tool," and when interpreted by a specialist they should have the value of getting more speedy information about a driver, as compared with often very costly on-the-job driving experience. Tests only can show that "something is the matter" with the applicant, and then must be followed up by special examinations by qualified medical specialists. He listed the following different tests as of proved value in driver selection:

Dept. 1. Physical examination . . . warning that the trucker should select a doctor qualified in the industrial field; and then tell the doctor exactly what is desired to be known about the applicant.

revenue- 2. General intelligence . . . explaining that a good intelligence rating might not be essential to driving abilities, but might prove of future importance through promotion of selected drivers to company executive positions.

is test 3. Eye tests . . . highly important, involving 95 per cent of all driving activities and closely related to accident experiences.

cluding 4. Speed and accuracy . . . revealed through both mechanical and written tests.

reli- 5. Personality inventory . . . valuable.

(TURN TO PAGE 98, PLEASE)

## The Experts Say:

CLEETON: Mechanical tests must be supplemented by others commonly used including initial interview, references, road performance and character reliability.

NEYHART: Psychophysical tests will never take the place of other standardized employee selection procedures, but they are an "additional tool." These 12 tests have proved value: Physical examination, general intelligence, eye tests, speed and accuracy, personality inventory, vocational interest, attitude scales, traffic and driving knowledge, driving skill tests, road test in traffic, psycho-physical tests and demonstration tests.

SADLER: Avoid employment of the psychasthenic, dreamer, hysteroid (poor emotional control), paranoid (weaknesses and suspicions), mood swinging (lack stability), schizoid (shy and timid), psychopathic (can't settle down). Ideal driver has average I.Q., comes from home where truck driving is considered "a good job."

DANCHIK: Top management must always keep these four attitudes in mind: discontent, equality, intelligence, opportunity.

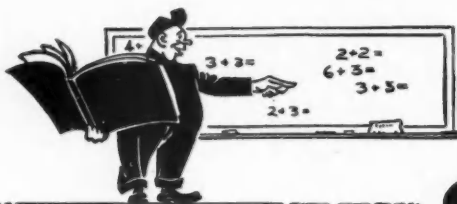
KRAMER: Driver training methods must be developed to control emotional causes of accidents.

BUHNER: Some of the larger companies with best safety records hire only one driver in 25 applicants . . . which seems to prove that other companies have poor drivers.

REITZEL: Top management must do more to sell safety to its drivers.



Arthur J. Naquin, New Orleans Public Service, Inc., and J. A. Ebeling, Olson Transportation Co., receive distinguished service awards from J. P. Hightower



## CCJ QUIZ



When Jake Malone ran the East-West Truck Lines everything was fine; however, one day Jake passed away and willed the business to his daughter Molly. The double entry bookkeeping and pay-roll duties went very smoothly, but maintenance chores, salesmen and schedule routing were not so easy. Trade chairs and spend a day in the life of Miss Malone. She scored an easy 80. See if you can outscore our heroine on the basis of 10 points for each correct answer. Answers on page 108.

1

L. Otto Breeze of the Colossal Lift Co. was waiting to sell new lifts and after scattering a barrage of technicolored brochures, concluded his sales talk by stating "the 12-ton capacity is the best for the average shop." Should Miss Malone sign the order?

Yes ☐ No ☐

2

The next decision was required on a report from the shop superintendent warning that with colder weather approaching, sludge problems would be aggravated and recommended either of the following:

- ☐ a. installation of new thermostats and more frequent change of oil filters, or
- ☐ b. changing to a heavy-duty oil and making more frequent oil changes.

What did Miss Malone do?

3

Third on the agenda was a letter from the National Highway Users Conference urging Miss Malone to write her Congressman advocating repeal of excise taxes on automotive transportation. Which of the following did Molly point out in her petition:

- ☐ a. they add to the cost of doing business
- ☐ b. they are "frozen" into expenses and raise the "break-even" point
- ☐ c. they tend to increase the price of products and services which in turn tend to limit markets
- ☐ d. by pyramiding everybody's automotive tax costs they may cut highway use and result in increased highway costs of the fewer vehicles operating
- ☐ e. if taxes remain as is and receipts are linked to Federal road expenditures the effect will be to burden

by G. W. BAHL

the motor vehicle owners with 100 per cent of all highway costs

4

Among other papers on her desk was a circular on tires offering the following sizes at a discount of 25 per cent. Of the 12 sizes listed check three (3) which no fleet owner would want:

- ☐ 7:00/18 ☐ 9:00/20 ☐ 11:50/20
- ☐ 7:50/16 ☐ 9:50/20 ☐ 12:00/24
- ☐ 8:25/20 ☐ 4:50/12 ☐ 13:00/20
- ☐ 8:50/18 ☐ 10:00/24 ☐ 14:00/24

5

Opening the window to admit a little fresh air in the office, our heroine overheard two drivers arguing the merits of the fuel used to propel their jobs: Tom contending it was getting better and Jerry insistent it was becoming worse. Miss Malone, if up to date, would agree with

☐ Jerry ☐ Tom

### JOBSEVATIONS

by Buster Rothman

The fellow who keeps watching the clock remains one of the hands.

\* \* \*

People who live beyond their means should act their wage.

\* \* \*

The way to get off on the wrong foot is to step on someone's toes.

\* \* \*

Speed gets you nowhere if you aren't headed in the right direction.

\* \* \*

Don't give up. When you come to the end of your rope, tie a knot in it and hang on.

\* \* \*

He who dwells on his troubles builds a home for misfortune.

\* \* \*

A square peg may not fit a round hole, but a square deal will fit anywhere.

\* \* \*

He is a slave who does only what he is compelled to do.

\* \* \*

Many a tombstone is carved by chiseling in traffic.

6

Back from gnawing on a T-Bone steak, Miss Malone chewed on her pencil attempting to solve the regular engine tune-up schedule and a limited crew. Figures showed one man averaged 2.8 hours per engine while two men on one engine spent 3.4 man-hours or a 21.4 per cent time differential in favor of one man. What should Miss Malone decide.

☐ 1-man crew ☐ 2-man crew

7

Passing the loading platform on her way to the dispatcher's office, Molly encountered four drivers in a heated argument over the "bridge formula." Naive as she was, she readily understood the controversy had reference to

- ☐ a. a new system for contract bridge
- ☐ b. weight permissible on bridges
- ☐ c. rust resistant paint for structural iron
- ☐ d. speed limit on bridges in different states

8

Next on the desk was a memo requesting more help for maintenance operations. For best overall efficiency the man hired should be best fitted for

- ☐ a. electrical systems
- ☐ b. engine troubles
- ☐ c. fuel systems

9

Our heroine then decided to do something about "truck-in-the-shop" time and found that trucks were delayed primarily for lettering the company name on the sides and back. Using one of the following cut the time element 300 per cent:

- ☐ a. Duco
- ☐ b. titanium oxide
- ☐ c. decals
- ☐ d. spray guns

10

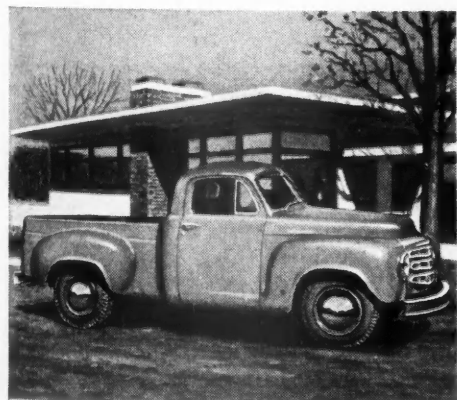
Before closing up the desk for the day, Miss Malone noted a requisition for sulfur sticks. She remember the time a prankster had her looking all over town for a spool of pipe thread, but wisely decided to order the sulfur sticks for one of the purposes listed below:

- ☐ a. deodorizing cattle trucks
- ☐ b. mothproofing textile carriers
- ☐ c. disinfecting grain trailers
- ☐ d. checking refrigerated units





**Drivers go for its all-weather comfort and performance  
...it's a new 1949 Studebaker truck!**



Builders like the new 1949 Studebaker pick-up trucks! Easy-loading pick-up bodies are standard on the half-ton, three-quarter-ton and one-ton models. Powerful 1½-ton and two-ton models serve larger load requirements. New "lift-the-hood" accessibility puts every adjustment point within easy reach. Instrument panel wiring and connections are on engine side—no need to fumble under dash.

**WATCH** the men around a loading dock when a revolutionary new 1949 Studebaker truck wheels up. How their faces beam at the sight of it!

It's more than America's newest truck—it already has a reputation as big as all outdoors!

There's a new sure-footedness in these new Studebaker '49ers—the cab steps are fully enclosed! No risky climbing to get in and out. The floors are low—the doors swing wide and have automatic "hold-open" stops!

Foot-controlled "air scoop" ventilators and adjustable window wings keep out rain, sleet, snow! Studebaker's amazing Truck Climatizer, available at extra cost, provides dependable

cab heating and defrosting.

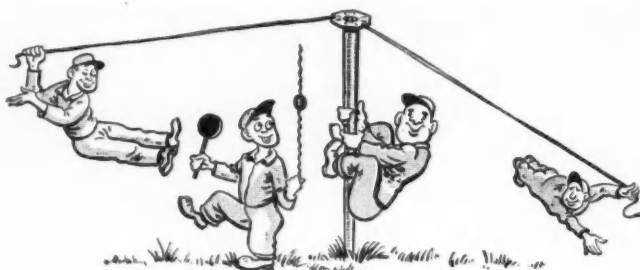
Unique Studebaker variable ratio steering builds up tremendous extra leverage when parking or rounding corners! New wide-base rims reduce roll on curves! New oversize windows and windshield increase visibility nearly 23%!

Set your sights on America's newest and finest if you're buying a new truck! Stop in now and see the revolutionary new 1949 Studebaker trucks—outstanding in low-cost operation!

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TRUCKS**

**NOTED FOR LOW-COST OPERATION**

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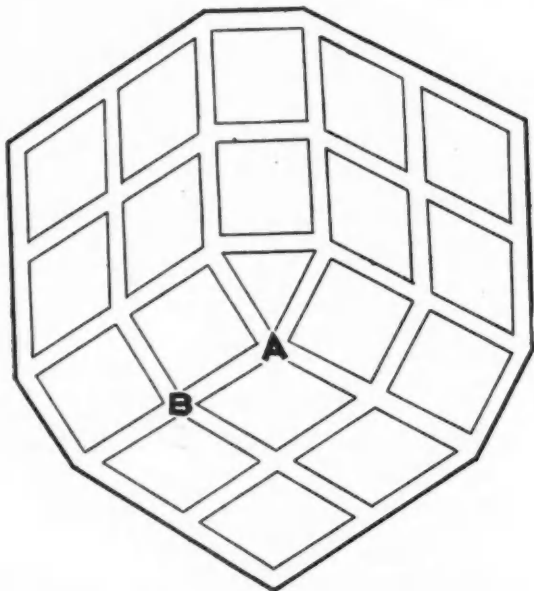
**DON'T PEEK**  
But solutions will be  
found on page 108

by  
**BORIS RANDOLPH**

## Time Out for PLAY

### Stop Thief!

In a walled-in area containing nineteen fields fenced in and divided by roads as shown below, a thief (A) was running away from a mechanic (B) from whom he had stolen some tools. Now every time the thief ran from one



intersection to another he had to stop to get his breath, and while he was stopping, the mechanic ran from one intersection to another, where, he too had to stop for breath. In other words, whenever the thief moved, the mechanic stood still, and whenever the mechanic moved, the thief stood still, and neither of them ever moved more than from one intersection to another at one time. Under these conditions, and assuming that both the thief and the mechanic knew the country pretty well and could keep each other in view at all times, could the mechanic ever catch up with the thief, if at this point in the chase it was the thief's turn to move?

### Check Your Oil

The OILy bird gets off to a head start in the following quiz, while the rest of you have to tOIL along and get the answers the hard way. Simply complete each OILy word according to the definitions, and don't let it spOIL your disposition:

1. The spring back of a spring --- OIL
2. Part of a steam generator - OIL -
3. A tool sharpener OIL - - -
4. Confusion - - - - OIL
5. A gridiron that has nothing to do with football - - OIL - -
6. A thin sheet of metal - - - - OIL

### Match Them Up

The following 24 words can be matched up one with another to form 12 longer words frequently heard around a service shop. You must, of course, use up all the small words.

|       |        |       |        |
|-------|--------|-------|--------|
| Age   | Grease | Light | Shaft  |
| Ball  | Haul   | Man   | Shield |
| Base  | Head   | Mile  | Using  |
| Bum   | High   | Over  | Way    |
| Crank | Ho     | Per   | Wheel  |
| Fore  | Horse  | Power | Wind   |

### Compound Shop Terms

A girl's name (LOU) plus Irish confetti (BRICK) plus a number (EIGHT) equals to oil (LOU-BRICK-ATE) LUBRICATE—Get it? Now see what you can do with the ones below.

1. A State of the Union - - - - plus half a score - - - equals something to keep out of pants and plants - - - equals the up keep on a truck \_\_\_\_\_.
2. An animals skin - - - - plus to attract - - - - plus to pass the tongue over - - - - equals a kind of brake \_\_\_\_\_.
3. Anything but old - - - - plus something to cover the floor - - - - plus a nasty little insect - - - - equals a kind of tire \_\_\_\_\_.
4. An automobile - - - - plus a prickly fruit covering - - - - plus a fixed ratio - - - - plus mineral earth - - - equals an important part of a gasoline motor \_\_\_\_\_.
5. To piece out - - - - plus a lash not found on the eye - - - - plus signified - - - - equals the outfit needed for a job \_\_\_\_\_.
6. The sound of a motor - - - - plus the shape you find things in - - - - plus your mother's nephew's father's wives - - - - equals what you look for in an engine \_\_\_\_\_.



Part 2

Protecting and Preparing for Painting Parts Affected by

RUST and ROT

Methods used by fleet body departments in repairing and protecting steel, aluminum, wood and canvas surfaces from deterioration; and types of tools and equipment for preparing vehicles for repainting

Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal

IN PART I OF THIS STUDY, published last month, the data showed that fleets that did their own work showed a higher percentage of operations that determine the quality of a refinishing job than fleets that have this work done by outside shops.

This part of the analysis follows the same pattern. Table 9, for example, shows that, in the course of preparing a vehicle for repainting, a total of 35.75 per cent of the reporting fleets waterproof all wood parts of a body that are subject to rot, and 47.34 per cent rustproof all metal parts of a body that are subject to corrosion. Of this group, the greater part—actually better than 4 to 1—are fleets that do their own refinishing.

Waterproofing

AS far as the actual job of waterproofing is concerned, the process merely consists of surface applications—with air brush or hand brush—at the time the parts are cleaned, repaired or replaced. Two types of waterproofing agents are reported: The absorbent type (such as creosote), and surface coatings, of which fleets mentioned the pigment types (such as white lead), the film types (such as varnish), and the heavy-flexible coatings (such as asphaltum). The absorbent types and the first two types of surface coatings appear to be most widely used. Some fleets report the use of one type, others report two types.

Do Fleets Waterproof and Rustproof Truck Parts?

- Q. "Do you waterproof all woodwork subject to rot, and rustproof all metalwork subject to corrosion?"
- A. 35.75% fleets treat all woodwork subject to rot; 47.34% treat all metalwork subject to corrosion.

Table 9

| VOCATIONAL GROUPS   | Number of Fleets Doing Complete Refinishing | Waterproof (Per Cent) | Rustproof (Per Cent) |
|---|---|-----------------------|----------------------|
| COMMON CARRIER  |   |                       |                      |
| Local and Over-the-Road   | 34  | 38.24                 | 52.94                |
| FOOD DISTRIBUTION   |   |                       |                      |
| Bakeries, Dairies, Meats and Other Food Products  | 42  | 40.48                 | 52.38                |
| GOVERNMENT  |   |                       |                      |
| State, County, Municipal, Federal   | 55  | 34.55                 | 45.45                |
| CONSTRUCTION  |   |                       |                      |
| Builders, Quarries, Gravel  | 11  | 36.36                 | 18.18                |
| INDUSTRIAL  |   |                       |                      |
| Local and Over-the-Road   | 5   | 60.00                 | 60.00                |
| PETROLEUM   |   |                       |                      |
| Producers and Distributors  | 6   | 33.33                 | 66.67                |
| PUBLIC UTILITY  |   |                       |                      |
| Gas, Power, Water and Telephone   | 19  | 21.05                 | 26.32                |
| RETAIL DELIVERY   |   |                       |                      |
| (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage | 18  | 22.22                 | 44.44                |
| TRUCK RENTAL  | 8   | 62.50                 | 75.00                |
| TRUCK AND BUS FLEETS, MIXED   | 9   | 33.33                 | 55.56                |
| TOTAL AND AVERAGE   | 207   | 35.75                 | 47.34                |

It should be noted that this treatment is not confined to fleets handling wet cargoes, as a study of Table 9 will show.

Rustproofing

THE rustproofing operation is handled in about the same manner. The anti-corrosion agent is brushed on or sprayed. The types reported are the pigment (such as red lead), petroleum (with inhibitor), and asphaltum.

The fleets were asked how they prepared deeply rusted areas for painting. Several different methods were reported. However, the predominant procedure is to sand-off the worst of the accumulated rust, wash down with a rust solvent, fill in the pitted area with putty or solder, and coat with an anti-corrosion agent. The runner-up procedure is to cut away and patch the corroded area or replace the entire panel or section.

It should be mentioned that a great number of fleets reported, "We never allow this condition to occur." Almost all of such comments came from fleets that removed moldings, accessories, body hardware, etc., and those who move body away from cab in the process of preparing a vehicle for reconditioning.

Aluminum Oxide

HOW fleets handle aluminum bodies affected by oxidation is shown in Table 10. Of those having aluminum bodies, 35.74 per cent, the



majority, or 25.12 per cent, sand the affected areas well and coat with zinc chromate.

Some fleets, 5.31 per cent, say they only sand the affected area. Where aluminum bodies are not painted, these fleets also buff the area to give it a suitable finish. Fleets grouped in the "Other" column say they remove and patch or replace the affected panel. Included also are fleets who say that they leave this up to the outside shop doing the work.

### Preservation of Canvas Tops

FLEETS having canvas tops on their vehicles were asked how they treat them prior to applying the final finish. Two of the methods reported predominate. One is to apply a filler undercoat, the other is to coat with aluminum paint. A slight majority favors the first method as shown in Table 11.

### How Fleets Prepare Aluminum Affected by Oxidation

Q. "If you have aluminum bodies, how do you prepare for painting the areas affected by oxidation?"

A. 25.12% fleets sand oxidized surface and coat with zinc chromate; 5.31% only sand oxidized area.

**Table 10**

| VOCATIONAL GROUPS  | Sand and Zinc Chromate<br>(Per Cent) | Sand Only<br>(Per Cent) | Other<br>(Per Cent) |
|--|--------------------------------------|-------------------------|---------------------|
| COMMON CARRIER<br>Local and Over-the-Road  | 41.18                                | 2.94                    | 8.82                |
| FOOD DISTRIBUTION<br>Bakeries, Dairies, Meats and Other Food Products  | 38.10                                | 2.38                    | 7.14                |
| GOVERNMENT<br>State, County, Municipal, Federal  | 12.73                                | 1.82                    | 1.82                |
| CONSTRUCTION<br>Builders, Quarries, Gravel   |                                      |                         |                     |
| INDUSTRIAL<br>Local and Over-the-Road  | 20.00                                | 20.00                   |                     |
| PETROLEUM<br>Producers and Distributors  | 16.67                                |                         |                     |
| PUBLIC UTILITY<br>Gas, Power, Water and Telephone  | 5.26                                 | 10.53                   |                     |
| RETAIL DELIVERY<br>(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage | 16.67                                | 5.56                    |                     |
| TRUCK RENTAL   | 62.50                                | 25.00                   | 12.50               |
| TRUCK AND BUS FLEETS, MIXED  | 44.44                                | 22.22                   | 33.33               |
| TOTAL AND AVERAGE  | 25.12                                | 5.31                    | 5.31                |

A few fleets reported that a switch was made from aluminum to the filler type because, while the use of aluminum paint prevented moisture from entering, it did not act as a fiber preservative when moisture was absorbed due to sweating, abrasion, or other reasons. One fleet operator said, that on the next job he is going to use an oil-base filler and then coat with aluminum paint before the final color coat is applied.

### Tools and Equipment Used

TABLE 12 shows the equipment items reported as used when preparing vehicles for refinishing. The most important observation that can be made concerning this table is that it closely parallels the type of equipment fleets reported using for spot refinishing and touch-up. The use of hydraulic straightening equipment is the only addition to the list.

### Are Canvas Tops Treated Prior to Painting?

Q. "If your bodies have canvas tops, what preparation is given them prior to painting?"

A. 15.94% fleets give canvas tops filler undercoat; 14.98% coat with aluminum paint.

**Table 11**

| VOCATIONAL GROUPS  | Filler Undercoat<br>(Per Cent) | Aluminum Paint<br>(Per Cent) | No Preparation<br>(Per Cent) | Other<br>(Per Cent) |
|--|--------------------------------|------------------------------|------------------------------|---------------------|
| COMMON CARRIER<br>Local and Over-the-Road  | 17.65                          | 23.53                        | 8.82                         | 2.94                |
| FOOD DISTRIBUTION<br>Bakeries, Dairies, Meats and Other Food Products  | 23.81                          | 14.29                        | 9.52                         | 9.31                |
| GOVERNMENT<br>State, County, Municipal, Federal  | 23.64                          | 7.27                         | 7.27                         | 3.64                |
| CONSTRUCTION<br>Builders, Quarries, Gravel   |                                |                              | 9.09                         |                     |
| INDUSTRIAL<br>Local and Over-the-Road  |                                | 40.00                        |                              |                     |
| PETROLEUM<br>Producers and Distributors  |                                |                              | 16.67                        |                     |
| PUBLIC UTILITY<br>Gas, Power, Water and Telephone  |                                | 5.26                         | 31.58                        | 5.26                |
| RETAIL DELIVERY<br>(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage | 11.11                          | 22.22                        | 5.56                         |                     |
| TRUCK RENTAL   | 12.50                          | 37.50                        |                              | 12.50               |
| TRUCK AND BUS FLEETS, MIXED  | 11.11                          | 33.33                        | 11.11                        |                     |
| TOTAL AND AVERAGE  | 15.94                          | 14.98                        | 10.14                        | 4.31                |

### Tools and Equipment Used for Complete Refinishing Jobs

Q. "If you do complete refinishing in your own shop, what tools and equipment do you use for this work?"

A. All fleets use power sanders, electric, pneumatic, or both; 81.64% use paint spraying equipment; 75.36% use acetylene torches; 62.80% use electric welders; 69.56% use power straightening equipment; 14.98% use solder sprayers.

**Table 12**

| VOCATIONAL GROUPS  | Number of Fleets Reporting Doing Complete Refinishing | Sanders                |                         | Paint Spraying Equipment<br>(Per Cent) | Acetylene Torch<br>(Per Cent) | Electric Welder<br>(Per Cent) | Hydraulic Straightening Equipment<br>(Per Cent) | Air-Operated Straightening Hammer<br>(Per Cent) | Solder Sprayer<br>(Per Cent) |
|--|---|------------------------|-------------------------|--|-------------------------------|-------------------------------|---|---|------------------------------|
|  |   | Electric<br>(Per Cent) | Pneumatic<br>(Per Cent) |  |                               |                               |   |   |                              |
| COMMON CARRIER<br>Local and Over-the-Road  | 34  | 70.59                  | 44.12                   | 91.18                                  | 82.35                         | 73.53                         | 52.94   | 35.53   | 14.71                        |
| FOOD DISTRIBUTION<br>Bakeries, Dairies, Meats and Other Food Products  | 42  | 57.14                  | 26.19                   | 61.90                                  | 52.38                         | 45.24                         | 28.57   | 30.95   | 16.67                        |
| GOVERNMENT<br>State, County, Municipal, Federal  | 55  | 72.73                  | 25.45                   | 94.55                                  | 87.27                         | 70.91                         | 29.09   | 32.73   | 16.36                        |
| CONSTRUCTION<br>Builders, Quarries, Gravel   | 11  | 90.91                  | 9.09                    | 100.00                                 | 100.00                        | 100.00                        | 63.64   | 36.36   |                              |
| INDUSTRIAL<br>Local and Over-the-Road  | 5   | 40.00                  | 20.00                   | 40.00                                  | 40.00                         | 20.00                         |   | 20.00   | 20.00                        |
| PETROLEUM<br>Producers and Distributors  | 6   | 83.33                  | 33.33                   | 83.33                                  | 66.67                         | 33.33                         | 33.33   | 16.67   | 16.67                        |
| PUBLIC UTILITY<br>Gas, Power, Water and Telephone  | 19  | 63.16                  | 26.32                   | 68.42                                  | 63.16                         | 57.89                         | 21.05   | 42.11   | 10.53                        |
| RETAIL DELIVERY<br>(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage | 18  | 66.67                  | 33.33                   | 83.33                                  | 63.33                         | 55.56                         | 22.22   | 27.78   | 5.56                         |
| TRUCK RENTAL   | 8   | 87.50                  | 37.50                   | 87.50                                  | 87.50                         | 87.50                         | 75.00   | 37.50   | 37.50                        |
| TRUCK AND BUS FLEETS, MIXED  | 9   | 55.56                  | 22.22                   | 77.78                                  | 77.78                         | 55.56                         | 77.78   | 33.33   | 22.22                        |
| TOTAL AND AVERAGE  | 207   | 68.12                  | 28.99                   | 81.64                                  | 75.36                         | 62.80                         | 36.71   | 32.85   | 14.98                        |

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2. More spring action for steel segments
3. All slots and oil holes open
4. Even tension for varied groove depth
5. Greater bearing area for longer life
6. Holds efficiency for life of ring

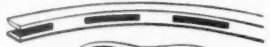
Sealed Power "X" Sets for all popular cars and trucks feature the MD-50 Steel Oil Ring—the only ring with the Full-Flow Spring.

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TWICE AS MANY SLOTS FOR  
FULL FLOW OF OIL

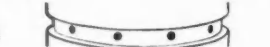
Through Ring



Through Spring



Through Oil Holes



GENTLE CURVES



INSTEAD OF HUMPS



for greater tension flexibility in tapered and out-of-round bores plus greater bearing area for longer spring and ring life.

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BEST IN NEW TRUCKS!

BEST IN OLD TRUCKS!



*Equipment includes windshield and grille, front quarter sections, removable engine cover and tilting seat*

## FORD

### Forward Control Chassis

**Features low floor, 6-cyl engine, accessibility  
and integral grille, windshield, front windows**

THE FORD MOTOR CO. has added two new F-3 series chassis of the forward control type. They are supplied with grille, windshield, front quarter windows, easy-access engine cover, and tilting driver's seat. Any

competent body builder can add roof, floor, side and rear panels, with doors and interior fittings designed to suit the user's particular requirements. No relocation of controls or other chassis conversion by

the body builder is necessary.

The new chassis, designed for multi-stop delivery service, are offered in 104 and 122-in. wheelbase lengths. Both have a maximum gross vehicle weight rating of 7800 lb and both are powered by the Range 226-cu-in. 6-cyl truck engine.

The steering gear is mounted forward of the front axle and outside the frame side member to provide additional body space. The 104-in. wheelbase chassis will accommodate 7 to 9-ft bodies and the 122-in. wheelbase chassis, 9½ to 11½-ft bodies.

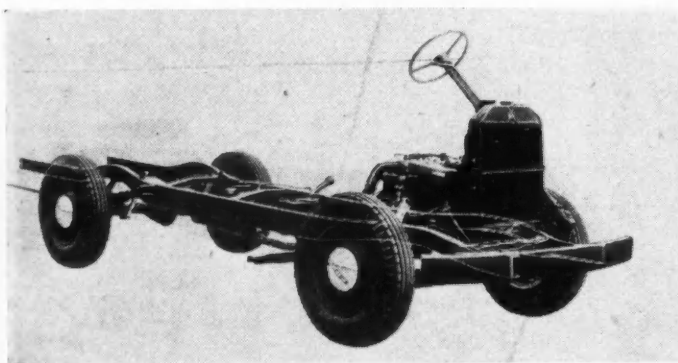
On both models the truck-type pressed steel channel frame has a 2-in. kickup over the front axle and a 3¼-in. kickup over the rear axle to give a drop at the center for low loading height even with conventional body cross sills. Depth of side members is 6 in.; flange width, 2.25 in.; thickness .19 in., maximum section, tapered front and rear. Side rails are extended at the front to permit direct attachment of a heavy channel steel front bumper which becomes, in effect, an extra cross member, providing greater rigidity and impact strength.

The wide-track front axle, permitting easy maneuverability, is a heat-treated alloy steel forging of 2900-lb capacity. The full-floating rear axle has a capacity of 5000 lb. It has a four-pinion type differential and rear axle gear ratio is 4.86 to 1.

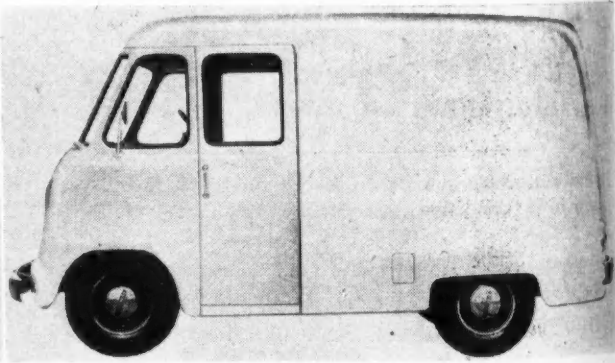
Semi-elliptic springs all around are of special alloy steel with front springs 36 in. in length and 1.75 in. in width. Rear spring length is 45 in., width 2.25 in. Progressive type rear springs with 2325-lb capacity are available as optional equipment with standard tires and required with 7.50-17, 8-ply tires.

(TURN TO PAGE 150 PLEASE)

*Fantom chassis view shows forward steering control and frame kick-ups over both axles*



*Artist's conception of completed body which may be adapted by builder to chassis above*





# Exide BATTERIES

POWER, DEPENDABILITY, LONG LIFE  
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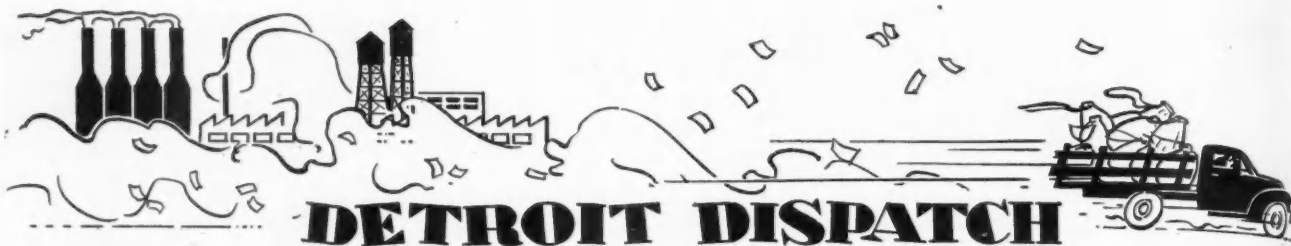
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**Aircooled, by GMC . . . Military Truck Orders . . . Fleet Discounts Out . . . Guaranteed for One Year . . . Transport Census Out . . . Are Better Brakes Safe? . . . Truck Production Soars**

### Aircooled, by GMC

General Motors has been requested by the armed services to develop a line of aircooled engines similar to those developed by Continental Motors in cooperation with Army Ordnance. The GM project covers engines ranging down from 125 hp, the lower level of the Continental line which goes up to 1040 hp. Development of a successful aircooled engine in the lower horsepower range by GM could have an important effect on the future of automobile and truck power plants.

### Military Truck Orders

There are no major military contracts in Detroit at present for military vehicles, but there is evidence that defense work may divert some material from automotive products next year. Continental Motors has a \$28 million contract for production of its newly developed aircooled engine. As a result, components such as transmissions, axles, and other elements will have to be built to be used with the engines in completed vehicles. One small truck builder already has an order from the Air Forces to build light airborne trucks which will be powered by the new Continental aircooled engines.

### Fleet Discounts Out

Truck sales managers predict that quantity fleet discounts, such as were common in the industry up to early this summer, will not return with the competitive market. Ford has just completed a revised fleet owner's agreement which is essentially the same as the previous one with the exception that rebates are eliminated. General feeling is that since all companies follow the first one to institute a rebate they soon are all on the same relative level as they were before, with no particular advantage to anyone since the discounts offered are nearly uniform for all companies.

### Guaranteed for One Year

Army Ordnance is planning to insist on a one-year or 4000-mile warranty on all military trucks brought hereafter. The reason is that the army does not always use its new vehicles immediately but sometimes stores them for as much as six months before using them. The Ordnance Depart-

**by LEONARD WESTRATE**  
CCJ Detroit News Editor

ment is expected to request about \$345 million for military vehicles for the 1950 fiscal year.

### Federal Transport Dept.

Despite opposition from all witnesses, with the exception of ODT Director Johnson, at the last session of Congress, Senator Capehart of Indiana again will introduce a bill in the new Congress to create a federal department of transportation.

### ATA Studies Small Shipments

ATA has asked fleet operators for comments and suggestions on a new plan developed for handling small shipments expeditiously and at a profit. The plan will be presented to ICC in mid-January during its investigation of small shipment practices and charges.

### 24-Volt Ignitions

A question of whether or not 24-volt ignition systems will be required on all military vehicles has not yet been settled. The automotive division of the National Security Resources Board will survey the overall situation, including the effect on the civilian economy, to see whether the 24-volt installation is practical.

### Transport Census Out

A census of the transportation industry scheduled for next year to cover 1948 will not be taken. Although the census was authorized by Congress, funds to carry it out were not approved. The next regular census of the industry will be taken in 1954 to cover the year 1953.

### Are Better Brakes Safe?

Truck manufacturers point out that if brake certification results in more stopping power than is currently built into trucks, operators will have to instruct drivers and loading platform workers accordingly. They point out that a sharp increase in stopping power could cause buckling of frames and loads to shift, dumping them over on the cab and driver. One builder of large trucks had just such an experience when it set up the brakes on the vehicle it de-

livered to one of its customers. A sharp stop caused the load to shift forward to crumple the cab and injure the driver. The trend in increasing brake power is toward energizing both front and rear shoes. The manufacturers believe that it will be necessary to work out with state agencies a rating for brakes that will be consistent with safety.

### Performance Ratings Tricky

From the truck manufacturer's point of view, states wanting performance ratings for trucks will have to work out their own requirements and enforce them so that the operator does not load in excess of the performance factor for his vehicle. They point out that with the varying terrain in different parts of the country, the manufacturers cannot guarantee any satisfactory performance rating for all conditions and that, therefore, the burden of maintaining gvw consistent with the performance factor for the various grades in any particular locality is pretty much up to the operator and the state enforcement officials. They point out also that on the basis of the suggested 390 to 400 gvw lb per horsepower only very large trucks or combinations would be affected.

### 700,000 Replacements

The Bureau of National Affairs reports that scrappage of trucks and buses now allows for replacement of about 700,000 units a year at the 1935-39 ratio to registration. That is nearly as many as were produced in any year up to 1947.

### Truck Production Soars

It now is fairly certain that truck production this year is going to shatter the previous all-time peak made in 1947 by approximately 150,000 units. At the end of October, total truck production was only 75,000 under the total for all last year and it was estimated that about 250,000 would be made in the last two months for a total this year of between 1.375 and 1.4 million trucks.

### Drivers Get Raise

The third round of wage increases for truck drivers and helpers in the 15 states of the central states area has been approved. It calls for a 15 cents-an-hour raise for all  
(TURN TO PAGE 80, PLEASE)

# "COSTS Held TO A MINIMUM"

PLANTS AT  
KANSAS CITY, MISSOURI  
KANSAS CITY, ILLINOIS  
KANSAS CITY, MISSOURI

**MAURER-NEUER CORPORATION**  
*Beef, Pork, Lard, Smoked Meat and Sausage*  
KANSAS CITY 10, MISSOURI

January 13, 1948

The Lindsay Corporation  
1740 25th Avenue  
Melrose Park, Illinois


Gentlemen:

We have had several years pleasant experience with Lindsay Structure Bodies and the American Body and Equipment Company here in Kansas City.

Lindsay Structure is all anyone could ask for in a body. We are proud of our Lindsay fleet, for its appearance and its sturdiness. Costs have been held to a minimum through the excellent service we have received.

We have twenty-three Lindsay Truck Units and two Lindsay Trailer Units in our fleet.

Yours very truly,  
MAURER-NEUER CORPORATION  
*Roy Yeaman*  
ROY YEAMAN



**Says - Maurer-Neuer Corp.,  
Kansas City, Missouri**



## Lindsay Structure Bodies Meet Your Requirements

Meat Packing Truck Body specifications are different, but Lindsay Body Builders are equipped to meet them.

Several years ago, the Maurer-Neuer Corporation, meat packers, Kansas City, Missouri, presented their problems to the American Body & Equipment Company, Kansas City, Missouri.

**Now -** Mr. Roy Yeaman of the Maurer-Neuer Corporation says—"Lindsay Structure is all anyone could ask for in a body. We are proud of our Lindsay Fleet, for its appearance and its sturdi-

ness. Costs have been held to a minimum through the excellent service we have received.

"We have 23 Lindsay Truck Units and 2 Lindsay Trailers in our fleet."

You can get the same kind of careful consideration whether you want one or a hundred truck bodies. There are 207 Authorized Lindsay Body Builders in a nationwide organization.

A Lindsay Body built for your job is an investment that pays dividends for years and years. Write—



# LINDSAY STRUCTURE

The Lindsay Corporation, 1724 25th  
Ave., Melrose Park, Ill. Sales Offices  
Chicago, New York, San Francisco.

U. S. Patents 2017439, 2263310, 2263311  
U. S. and Foreign Patents and Patents Pending



## Detroit Dispatch

(CONTINUED FROM PAGE 78)

hourly-rated employees and  $\frac{1}{2}$  cent per loaded mile for drivers paid on a mileage basis in states east of the Mississippi River, and  $\frac{1}{4}$  cent a mile in the western states. The increase brings the hourly rate to \$1.47 an hour and mileage rates as follows: Single Axle, 5.5 cents; tandem axle, 5.75 cents; double bottom, 6.9 cents. The trucking industry in the central states region does not expect any particular difficulty with labor even though the Taft-Hartley Act may be repealed or modified. Spokesmen point out that they have been operating

under a contractual relationship with the unions for a long period and that procedures are so well established now that they experience no particular difficulty in negotiating agreements or settling grievances.

### H. B. CHURCH DIES

Harold B. Church, president and treasurer of H. B. Church Truck Service Co., Roxbury, Mass., died recently at the age of 62. Mr. Church spent 35 years in the trucking industry, serving at one time as president of the Massachusetts Motor Truck Assn.

## FLEETMAN'S LIBRARY

FEDERAL TRUCKS, a 20-page, full-line folder describing the special features incorporated in the company's line of trucks, and giving specifications and applications for each unit. The booklet outlines complete information on both gasoline and diesel-powered units of both conventional and 6-wheeler design. Federal Motor Truck Co., 5780 Federal Avenue, Detroit 9.

TRUARC ENGINEERING SPECIFICATIONS & DATA CATALOG, with 28 pages of charts for all standard types of Truarc rings. Data includes ring dimensions, housing and shaft dimensions, groove dimensions, thrust load capacities, materials, tensile strengths and types of finishes. Truarc Division, Walder Kohinoor, Long Island City 1, N. Y.

BULLETINS illustrating and describing the complete line and latest models of Champion air compressors and car washers for garage and service station use. The Champion Pneumatic Machinery Co., Chicago.

A MANUAL on aluminum casting alloys and their application available from The Aluminum Association, 420 Lexington Avenue, New York 17, N. Y.

PARTS CATALOG listing carburetor replacement parts and kits, has just been published. Conversion tables and interchangeable listings have been simplified and illustrations of all parts make identification and servicing easy. Precision Automotive Component Parts Co., St. Louis, Mo.

NEW BULLETIN describing Sterling Wrought Iron Sling Chains. Content includes sling chain safety rules and full data on chain inspection, use and care. Recommended load limits are listed in detail for various chain sizes and suspension angles. Single and double sling chain specifications are presented in tabular form. Cleveland Chain & Mfg. Co., Cleveland 5, Ohio.

BRAKE PARTS AND LINING CATALOG, AU-500, with One-Point reference to fast moving brake parts and lining. Covers popular models of passenger cars and trucks. Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

FOUR-PAGE FOLDER describing three types of portable power saws manufactured by The Kett Tool Co., 5 East Third St., Cincinnati, Ohio.

NEW HEIL BULLETINS. Bulletin TT-48250 presents the standardized line of petroleum truck tanks, MST-48293 covers stainless steel milk storage tanks and MTR-48297 describes trailerized stainless steel milk transport tanks. The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.

SPRING CATALOG AND DATA MANUAL containing complete, up-to-date information and specifications for leaf springs, main leaves and spring parts. Maremont Automotive Products, Inc., Chicago.

BULLETIN No. 1042 describing new Blackhawk Reck-Rack equipment for body men with 49 application photos. Write directly to Blackhawk Mfg. Co., Milwaukee, Wis.

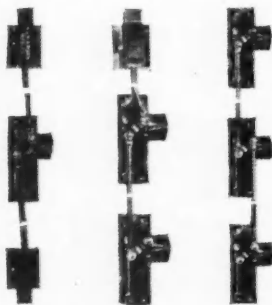
## Combine Sturdiness-Strength-Stamina with Heavy-Duty HARDWARE

**Rugged!  
Durable!!  
Adaptable!!!**

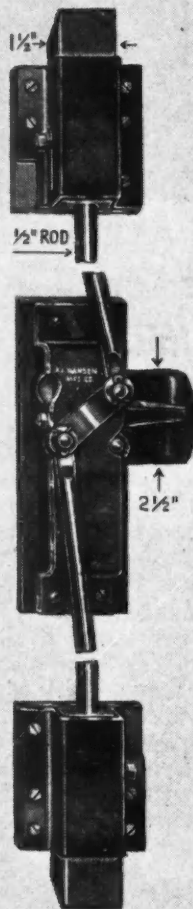
HANSEN No. 111 Heavy-Duty Lock fits many needs. Nothing to assemble. No extras to buy. Ruggedly built for lasting service.

- 1 Outside handle and locking mechanism adaptable for right- or left-hand doors.
- 2 Lock may be used with center mechanism at either bottom or top, or both, if desired.
- 3 Bolts at top and bottom are  $1\frac{1}{2}$ " wide. Center bolt is  $2\frac{1}{4}$ " wide. Rods are  $\frac{1}{2}$ " dia.
- 4 Locking bolts are held open or closed under pressure!

This lock meets a definite need among builders of vans, trailers, etc. Request details.



No. 111 Heavy-Duty Lock may be used in three different combinations as shown.

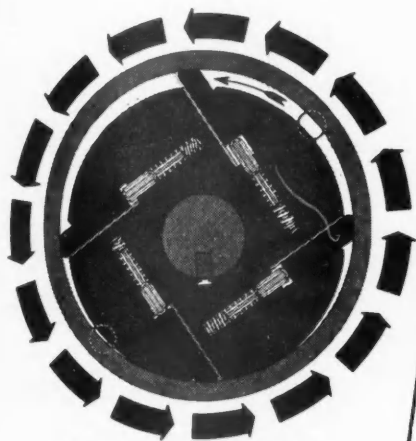


# Hansen

**A. L. HANSEN MFG. CO.**  
5047 RAVENSWOOD AVE. CHICAGO 40, ILL.

**6 Years . . . Over 260,000 miles  
with no interruption in service . . .  
for Unit equipped with**

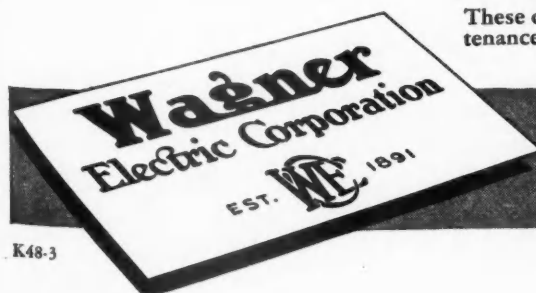
**Wagner**  
*Air Brakes*



**The WAGNER  
Rotary Air Compressor**

Check these features that are so desirable in Automotive Air Brake Systems: Rotary motion of all moving parts . . . In running balance at all times . . . Longer belt life due to more uniform torque loading . . . Low friction losses —therefore high operating efficiency . . . A predetermined air pressure range automatically maintained . . . Operating parts are lightly stressed, thereby insuring long life and low maintenance cost . . . Extremely quiet in operation . . . Self-contained oiling system—uncontaminated by engine waste products . . . Compact—requires minimum installation space . . . Low operating temperature prevents carbon formation in the compressor and delivery lines . . . Adaptable to all types of automotive systems.

**Wagner Electric Corporation**  
6470 PLYMOUTH AVE., SAINT LOUIS 14, MO., U. S. A.



K48-3

**PUGET SOUND POWER & LIGHT COMPANY**

Wagner Electric Corp.  
1918 1st Ave. South  
Seattle, 4, Wash.

Att: Mr. A. P. Nelsen

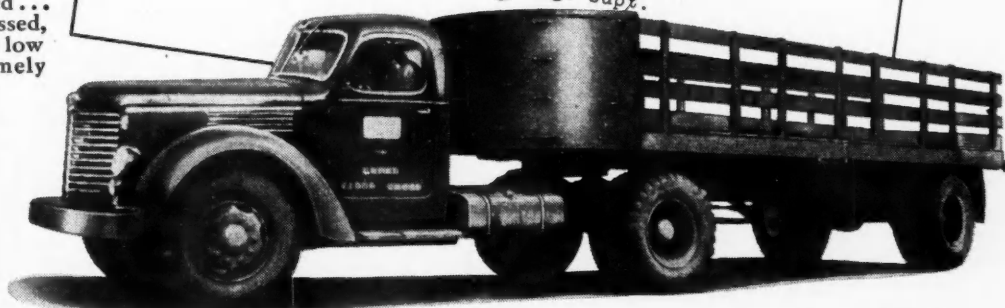
Gentlemen:

It occurred to me you would be interested in the performance of an AF1001 Wagner Rotary compressor used since April 15, 1941 on a KS8 1941 International Harvester tractor. This tractor pulls a 24 foot semi-trailer over all types of roads here in Western Washington, hauling all kinds of line material, heavy transformers and other apparatus to jobs located in many off-the-highway places. Needless to say, thoroughly dependable air brakes such as Wagner builds are "a must".

It is a pleasure to report that, as of April 1st 1947, the Wagner compressor has operated for over 260,000 miles with no interruption in service. We replaced the inexpensive control valve diaphragm twice during all that mileage and then did not lay the compressor up. Such performance you may be assured, is a real relief and satisfaction to both driver and superintendent.

Very truly yours

*Wm. J. Stanaway*  
Wm. J. Stanaway  
Garage Supt.



The enthusiastic praise in this unsolicited letter is typical of what users say about Wagner Air Brakes—The only Air Brakes that have the famous Rotary Air Compressor.

These outstanding air brakes can help you, too, in lowering your brake maintenance costs. Get complete information today. Write for Bulletin KU-50B.

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID - M&M  
CoMax BRAKE LINING - AIR BRAKES - TACHOGRAPHS  
ELECTRIC MOTORS - TRANSFORMERS - INDUSTRIAL BRAKES





## WASHINGTON RUNAROUND

**A Look at Taxes . . . About Price Controls . . . Rate-Making Under Attack . . . Guaranteed for One Year . . . Xmas Mail Rush . . . Truck-Trailer Output Down . . . Oil Picture Good . . . Road Test**

### A Look at Taxes

The Democratic triumph last month eliminates the slim possibility that previously existed regarding reduction of automotive excise taxes by the 81st Congress. With additional Federal spending sure to be a feature of Mr. Truman's Administration, chances are that taxes will be raised rather than lowered. This does not apply to excises, however, which will remain largely unchanged. If tax increases are necessary, it appears that corporate levies will be the first to be upped.

### About Price Controls

Despite Mr. Truman's oft-reiterated cries for allocation and price controls, it does not appear likely that American industry is facing a return to full wartime controls. At this early date, it seems that a continuation of voluntary allocations which have been used solely for the allocation of steel to essential needs, plus standby allocation and price powers is the most likely outcome. Standby allocation powers would be used primarily as a club to insure effective operation of the voluntary allocations program. Standby price powers would be used mainly as a deterrent to still higher prices, rather than as a means to roll prices back.

### Rate-Making Under Attack

Watch for a strong Democratic attempt to repeal the Reed-Bulwinkle joint rate-making agreement act. Opening shot in this campaign was fired by Arne C. Wiprud, former assistant attorney general, appearing before the House Small Business Committee. It will be remembered that the 80th Congress passed this law over President Truman's veto.

Opponents of the act are particularly burned at the alleged attempt of the railroads to use the provisions of the law as a basis for requesting dismissal of the Georgia and Lincoln, Neb., rate cases.

Meanwhile, the first application for exemption of collective rate agreements under the new law is now being studied by the Interstate Commerce Commission.

This application was filed in behalf of the Household Goods Carriers Bureau, Inc., by the Kane Transfer Co. The application seeks exemption from antitrust prosecution, as provided by the act, for the group's collective rate-making activities.

by **GENE HARDY**  
CCJ Washington Correspondent

### Guaranteed for One Year

The Department of the Army is reported to be pushing truck manufacturers for a vehicle guarantee of 4000 miles or one year, as compared with the standard commercial guarantee of 4000 miles or 90 days. Reason given is that military agencies claim that military vehicles are often stored from six to eight months before being put into operation. It is also reported that one truck producer has already assented to this request.

### And Xmas Mail Rush

There will probably be a smaller number of Army and Air Force trucks helping the Post Office Department handle the Christmas mail rush this year. Postal authorities have estimated that vehicular requirements for the handling of Christmas mail will be slightly greater this year than in 1947, with considerable increases in many localities. However, due to the needs of the current military expansion program, both the Army and Air Force are not expected to be able to lend as many vehicles as in previous years. National Guard vehicles are expected to aid in filling the gap.

### Truck-Trailer Output Down

Truck-trailer production for the year is estimated at about 45,000 units, a sizeable drop from the 53,096 turned out during 1947. Latest figures available show that output during the first nine months of 1948 totaled 33,468 units.

September production amounted to 3,594 units, a slight decrease from the 3,622 units produced in August and was 14 per cent above the September 1947 output of 3,158 units.

Trailer producers expect output to climb next year, largely as a result of the shift to truck transportation in a number of important commodities, principally steel products.

Meanwhile, along other lines in the trailer industry, a three-man task group met in Washington last month to study and make recommendations concerning mobilization plans for the truck-trailer industry.

The group consists of Julius Glick, Trucker Engineering Corp., Harvey Fruehauf, Fruehauf Trailer Co., and Frank Svotters, Traimobile Co. Its study is being conducted under the supervision of Fred Glover, director of the National Security Resources Board Automotive Division.

Before adopting the recommendations of the truck-trailer task group, they will be thoroughly reviewed by the NSRB automotive division staff and referred to a Truck-Trailer Industry Advisory Committee, which had not yet been appointed as this issue went to press.

### The Oil Picture Good

Washington petroleum experts are pretty generally agreed that any danger of a shortage of petroleum products this winter has long since passed. Primary reason is the continuing record-breaking production of crude, which has the industry "rejoicing" at the present time.

All talk of rationing has disappeared and Congressional Committees have suspended their investigations of the petroleum "shortage."

On the long-range petroleum outlook, it isn't necessarily true that the National Security Resources Board will recommend a cut-back in domestic oil production. NSRB is plenty burned at Wallace Pratt, a former employee, for publicly stating that the cut-back proposal was being considered, in order to conserve domestic reserves. Actually, the Pratt suggestion for retarded production was contained in a preliminary draft of a forthcoming NSRB report. But whether this controversial proposal will be included in the final version of the report is anybody's guess. The report won't be released for several weeks yet.

### Road Test Analyzed

Conclusion of the road tests in Pennsylvania brings to an end the first phase of the Highway Research Board's study of the economics of motor vehicle sizes and weights. Data from the tests is now being collated and analyzed, but it will be many months before any detailed material is released publicly. Ultimate purpose of the study is to determine economic load limits for transport vehicles, taking into account transportation requirements, the cost of hauling, and highway costs.

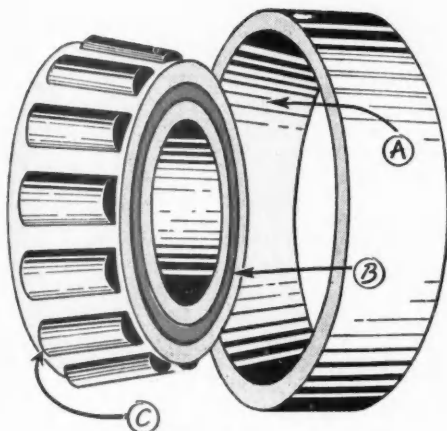
(TURN TO PAGE 84, PLEASE)



## STANDARD ENGINEER'S CASE FILE



### CASE 1025--PROVIDING CONSTANT LUBRICATION IN WHEEL BEARINGS.



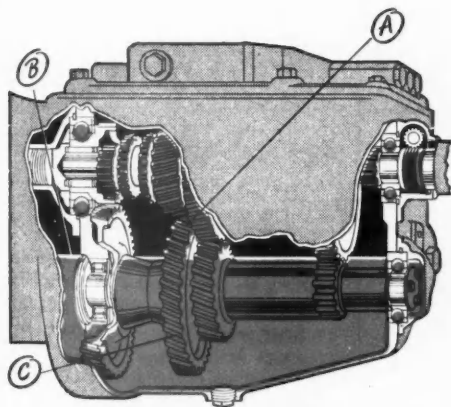
AUTOMOTIVE ROLLER WHEEL BEARING

Wheel bearings in trucks hauling heavy loads in desert heat, winter cold and rain, were in perfect condition long after usual servicing periods when the bearings were lubricated with RPM Wheel Bearing Grease. Recommended for all sizes and types of wheel bearings. Apply to bearing assemblies by hand or with mechanical lubricators.

- A. Maintains tough, resilient film on bearing surfaces - protects during constant pounding of road shocks and under overload pressures.
- B. Feeds slowly to bearing parts ... resists extreme temperatures - will not melt and run from hubs onto brakes.
- C. Stays in smallest bearing clearances.

RPM Wheel Bearing Grease provides good lubrication in the presence of water.

### CASE 1029--REDUCING WEAR IN CONVENTIONAL AND WORM GEARS.



TYPICAL AUTOMOTIVE TRANSMISSION

Compounded RPM Gear Lubricant satisfactorily met all operating conditions in these gears in cars, trucks and similar machines. Comes in four grades: SAE 80, 90, 140 and 250. (For hypoids, use RPM Multi-Service Gear Lubricant.)

- A. Compounds help resist high temperatures and pressures on gears. Minimize deposits and thickening. Make it non-corrosive to metals in gears and cases.
- B. No foaming and leaking trouble - contains most effective foam inhibitor known.
- C. High affinity for metal maintains lubricating film at all times. Constant oil wedge at gear contact points prevents scoring and extra wear.

RPM Gear Lubricant (Compounded) resists viscosity changes ... allows easy shifting in low temperatures and fast flow of lubricant onto gears.

For additional information and the name of your nearest Distributor, write

**STANDARD OIL COMPANY  
OF CALIFORNIA**

225 Bush Street, San Francisco 20, California

**The California Oil Company**

Barber, New Jersey

**The California Company**

17th and Stout Streets, Denver 1, Colo.

**Standard Oil Company of Texas**

El Paso, Texas



Trademarks Reg. U. S. Pat. Office

## Washington Runaround

(CONTINUED FROM PAGE 82)

### Government PM Manual

The preventive maintenance manual for government motor vehicles, prepared by the Interdepartmental Motor Equipment Committee, last month was endorsed by the Bureau of the Budget and issued for the guidance of all departments and establishments.

Pointing out that some agencies have preventive maintenance programs already

well established, the Budget Bureau states that the plan "leaves ample leeway in terms of specific procedures, and should be the means of bringing greater uniformity in the general approach to such existing programs. Those agencies which have not yet attempted to deal systematically with preventive maintenance should find that this plan will facilitate the development of a good preventive maintenance program."

This first attempt at coordinated systematic preventive maintenance within the Federal Government is an effort to pass along to those responsible for motor equipment (1) the broad outline of a program by which to approach preventive maintenance

and (2) a flexible but essentially uniform framework around which to build the specific standards to be developed under such a program.

The new manual is addressed mainly to equipment engineers or administrative officers who are technically responsible for the operation and maintenance of large numbers of government vehicles.

### Navy to Train Specialists

A Volunteer Automotive Transportation Naval Reserve, to train specialists to direct the use of Navy automotive equipment in a national emergency, will be activated Jan. 1, 1949.

Units will be formed wherever a sufficient concentration of automotive specialists exists. They will hold ten monthly meetings and receive two weeks active training duty each year.

The mission of the Automotive Transportation Reserve will be to furnish trained personnel for expansion of automotive and general transportation administration at all Navy activities. It will be organized on a scale sufficient to meet the Navy's needs for extended land and foreign base operations during an emergency or war effort.

Training of the units will be accomplished through printed lessons covering topics such as Garages, Shops and Repair Depots, Spare Parts, and Cold Weather Operations. Seminar discussions will deal with laws related to transportation; capacities, costs and upkeep of vehicles; preventive maintenance; procurement and disposition; supply and requisitioning of parts; and interchangeability of parts.

Plans for active training duty for the Automotive Reservists call for assignments to the automotive divisions of the Bureau of Yards and Docks, District headquarters, shipyards and air stations.

Men with Navy experience in automotive work who are interested in the Volunteer Automotive Transportation Naval Reserve should apply for details at the Office of Naval Officer Procurement nearest their home.

### What's a Mechanic Worth?

Average hourly earnings of Class A automotive mechanics in July 1948 ranged from \$1.31 to \$2.15 in 30 large cities representing all sections of the country, according to the Bureau of Labor Statistics. In 4 cities, earnings averaged \$2.00 or more an hour while in only 6 cities were hourly earnings lower than \$1.50. Body repairmen, who averaged from \$1.37 to \$2.36 an hour were, for the most part, the highest paid workers among the jobs studied. Class A mechanics had higher earnings than body repairmen in 5 of the 30 cities. Wages of greasers ranged from 78 cents to \$1.84 an hour and of auto washers from 64 cents to \$1.50.

Earnings in Great Lakes and Pacific Coast cities were generally higher than those received in other regions of the country. The lowest hourly earnings for the selected jobs were not confined to any particular region, but were found chiefly in Southern and New England cities.

# The Combination that Insures FULL POWER Performance



America's Fastest Growing Ring Line — Skyrocketing to Leadership.



## MOOG X-PLUS PISTON RINGS MOOG DYNAMIZED PISTONS

The increased popularity of the Moog X-Plus Piston Ring Line is due to the guaranteed FULL POWER results repairmen know eliminate costly comebacks.

To insure a good motor reconditioning job every collapsed piston should be dynamized with the Moog Dynamizer — the method that restores *All Types* of worn pistons.

Ask your jobber for the FULL POWER Reconditioning Story today or write —

**MOOG PISTON RING CO.**

Division: MOOG INDUSTRIES, INC.

ST. LOUIS 14, MO.



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# Always at your service



**NEW USES** for electricity in homes, industry and on the farm . . . have vastly increased the use of electric power. Electric light and power companies are spending \$6-billion in the next five years to expand plants and equipment and add to their 450,000 miles of high-voltage transmission lines, 2-million miles of distribution lines . . . every mile maintained by trucks on a 24-hour-a-day basis.

**ELECTRIC SERVICE** . . . so dependable that it keeps millions of America's clocks running on time, all the time . . . makes modern living more convenient, healthier. Night becomes day . . . the family's meals are cooked to perfection . . . wash day is reduced to hours. These are only a few of the



home tasks performed by the same reliable electric servants that turn so many wheels in industry and on the farm.

Because dependability is a necessity 24 hours a day in the electric industry, the utmost in dependability is required of its motor trucks . . . and Whites enjoy a

marked preference. The wisest truck investment for any exacting service is based on the performance, long life and economy of White quality. Your local White Representative will gladly provide facts and figures in terms of your own business.

**THE WHITE MOTOR COMPANY**  
Cleveland, Ohio, U. S. A.  
THE WHITE MOTOR COMPANY OF CANADA LIMITED  
Factory at Montreal

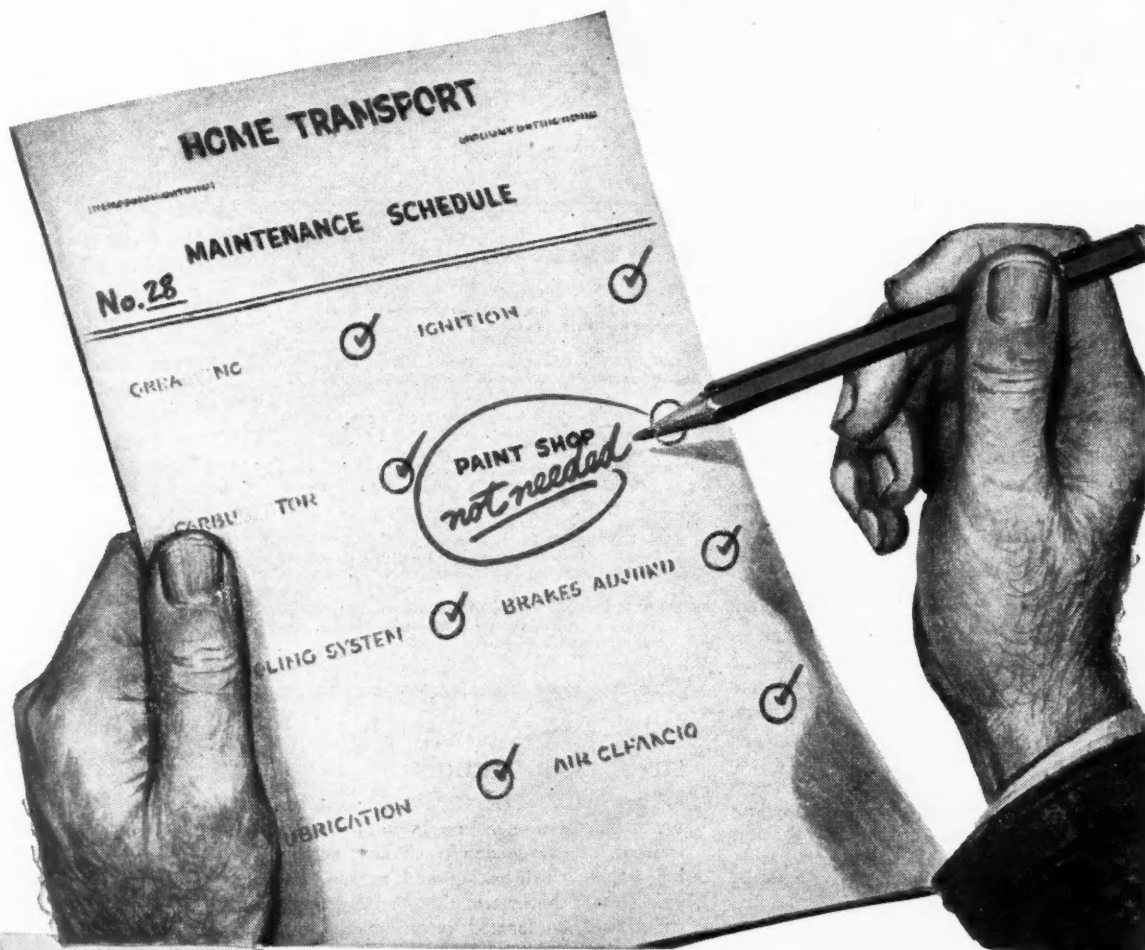
**FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS**



# 1948 New Truck Registrations by Makes by States\*

| STATE          | Auto-car    | Brock-way | Chevrolet | Diamond T | Divco | Dodge | Federal | Ford | FWD  | GMC  | International | Mack | Osh-kosh | Reo | Sterling | Studebaker | Ward La France | White | Willis | All Others | Total  |
|----------------|-------------|-----------|-----------|-----------|-------|-------|---------|------|------|------|---------------|------|----------|-----|----------|------------|----------------|-------|--------|------------|--------|
| Alabama        | Sept. 338   |           | 2         |           | 96    | 1     | 197     |      | 120  | 99   | 14            |      | 7        |     | 40       |            | 11             | 63    | 3      | 981        |        |
| Sept. 5263     |             |           | 48        | 21        | 1440  | 29    | 3847    |      | 1138 | 1805 | 115           |      | 182      |     | 583      |            | 113            | 1058  | 31     | 15,072     |        |
| Arizona        | Sept. 129   |           | 1         | 4         | 99    |       | 161     |      | 42   | 24   | 3             |      | 5        |     | 51       |            | 6              | 37    | 8      | 4,414      |        |
| Sept. 1290     | 3           |           | 7         | 18        | 539   | 12    | 1099    | 2    | 323  | 366  | 11            |      | 73       | 5   | 315      |            | 44             | 272   | 35     | 6,691      |        |
| Arkansas       | Sept. 204   |           | 2         |           | 65    |       | 153     |      | 50   | 44   |               |      | 6        |     | 34       |            | 3              | 91    |        | 682        |        |
| Sept. 5157     |             |           | 87        | 1         | 1372  | 27    | 3881    | 3    | 1000 | 1493 | 42            |      | 272      |     | 595      |            | 75             | 1522  | 9      | 15,537     |        |
| California     | Sept. 1455  | 1         | 34        | 43        | 1219  | 3     | 1183    | 4    | 637  | 446  | 20            |      | 20       | 6   | 490      |            | 39             | 406   | 70     | 6,091      |        |
| Sept. 170      | 24          | 13363     | 304       | 352       | 7230  | 55    | 10613   | 56   | 4528 | 4711 | 239           | 6    | 190      | 81  | 3293     |            | 338            | 2982  | 477    | 40,012     |        |
| Colorado       | Sept. 313   |           | 10        | 7         | 134   | 7     | 174     |      | 95   | 87   | 1             |      | 6        |     | 49       |            | 3              | 89    | 3      | 979        |        |
| Sept. 2706     | 7           |           | 107       | 37        | 984   | 51    | 2260    | 33   | 822  | 1429 | 17            |      | 72       |     | 413      |            | 44             | 874   | 11     | 9,807      |        |
| Connecticut    | Sept. 218   | 2         | 20        | 24        | 96    | 9     | 202     |      | 72   | 87   | 14            |      | 11       |     | 50       |            | 8              | 80    | 3      | 903        |        |
| Sept. 69       | 62          | 1705      | 119       | 109       | 696   | 63    | 1496    | 11   | 451  | 813  | 146           |      | 62       | 8   | 396      |            | 83             | 593   | 39     | 6,091      |        |
| Delaware       | Sept. 66    |           | 2         | 3         | 44    |       | 71      |      | 18   | 30   | 1             |      | 2        |     | 17       |            |                | 13    | 3      | 271        |        |
| Sept. 703      | 11          |           | 20        | 15        | 318   | 2     | 652     |      | 197  | 330  | 14            |      | 11       |     | 97       |            | 21             | 88    | 19     | 2,507      |        |
| Dist. of Col.  | Sept. 57    |           | 8         | 7         | 29    |       | 82      |      | 31   | 48   | 3             |      | 1        |     | 8        |            | 2              | 7     | 1      | 207        |        |
| Sept. 713      | 13          | 5         | 39        | 92        | 293   | 21    | 734     |      | 278  | 409  | 33            |      | 35       | 1   | 91       |            | 24             | 149   | 14     | 2,944      |        |
| Florida        | Sept. 575   |           | 8         | 3         | 202   | 4     | 434     |      | 178  | 127  | 12            |      | 10       |     | 107      |            | 15             | 106   | 17     | 1,706      |        |
| Sept. 5105     | 19          |           | 102       | 27        | 1629  | 55    | 3476    | 3    | 860  | 1356 | 136           |      | 118      |     | 697      | 2          | 145            | 1191  | 142    | 15,063     |        |
| Georgia        | Sept. 732   |           | 10        | 216       |       | 1     | 520     |      | 162  | 183  | 23            |      | 12       |     | 111      |            | 12             | 140   | 2      | 2,125      |        |
| Sept. 7221     | 2           | 1         | 240       | 6         | 2144  | 52    | 6162    | 3    | 1339 | 2809 | 198           |      | 276      |     | 1046     |            | 182            | 1662  | 46     | 23,380     |        |
| Idaho          | Sept. 160   |           | 10        | 1         | 85    | 5     | 145     |      | 60   | 77   | 1             |      | 12       |     | 72       |            | 6              | 80    | 1      | 719        |        |
| Sept. 1632     | 1           |           | 81        | 9         | 661   | 27    | 1292    | 4    | 480  | 809  | 25            |      | 126      |     | 532      | 2          | 45             | 698   | 48     | 6,472      |        |
| Illinois       | Sept. 1580  | 1         | 96        | 18        | 512   | 12    | 1004    | 9    | 385  | 664  | 25            |      | 73       |     | 209      |            | 50             | 489   | 16     | 5,128      |        |
| Sept. 142      | 9           | 12784     | 937       | 325       | 4645  | 185   | 8221    | 18   | 2448 | 6928 | 334           |      | 676      | 8   | 2023     | 3          | 547            | 3094  | 247    | 43,564     |        |
| Indiana        | Sept. 546   |           | 29        | 7         | 228   | 7     | 596     |      | 1    | 245  | 243           | 6    |          | 13  |          | 185        |                | 33    | 175    | 11         | 2,315  |
| Sept. 5741     | 3           | 18        | 236       | 153       | 2136  | 98    | 4557    | 6    | 1562 | 3333 | 105           |      | 238      |     | 1310     |            | 349            | 1539  | 170    | 21,564     |        |
| Iowa           | Sept. 668   |           | 25        | 3         | 227   | 7     | 448     |      | 150  | 217  | 10            |      | 22       |     | 81       |            | 11             | 124   | 1      | 1,996      |        |
| Sept. 5936     | 2           |           | 335       | 54        | 2066  | 29    | 4731    | 14   | 1058 | 3196 | 99            | 3    | 287      |     | 903      | 2          | 187            | 1575  | 27     | 20,544     |        |
| Kansas         | Sept. 632   | 1         | 14        | 1         | 173   | 5     | 359     |      | 104  | 119  | 2             |      | 8        |     | 92       |            | 10             | 146   | 6      | 1,672      |        |
| Sept. 6325     | 1           | 3         | 190       | 23        | 1608  | 120   | 4086    | 3    | 945  | 2334 | 24            |      | 246      |     | 885      |            | 98             | 979   | 47     | 17,197     |        |
| Kentucky       | Sept. 426   |           | 29        | 2         | 132   | 7     | 293     |      | 140  | 162  | 9             |      | 14       |     | 61       |            | 3              | 261   | 5      | 1,546      |        |
| Sept. 4713     | 16          |           | 220       | 23        | 1349  | 126   | 3699    |      | 1010 | 1972 | 74            |      | 304      |     | 555      | 6          | 91             | 2684  | 52     | 16,086     |        |
| Louisiana      | Sept. 570   |           | 8         | 7         | 142   |       | 422     |      | 1    | 133  | 127           | 10   |          | 9   |          | 69         |                | 8     | 188    | 11         | 1,706  |
| Sept. 4136     | 4           |           | 129       | 26        | 1253  | 12    | 3415    | 6    | 734  | 1450 | 66            |      | 92       |     | 578      |            | 92             | 1037  | 82     | 13,112     |        |
| Maine          | Sept. 285   | 3         | 2         | 1         | 62    | 9     | 215     |      | 1    | 128  | 9             |      | 12       |     | 39       |            | 1              | 51    | 2      | 917        |        |
| Sept. 1678     | 2           | 18        | 6         | 24        | 473   | 32    | 1383    | 1    | 487  | 794  | 59            | 1    | 109      |     | 5        | 298        | 1              | 18    | 380    | 17         | 5,780  |
| Maryland       | Sept. 321   |           | 18        |           | 147   |       | 242     |      | 99   | 122  | 9             |      | 11       |     | 41       |            | 6              | 125   | 2      | 1,191      |        |
| Sept. 3303     | 47          | 71        | 65        | 58        | 1132  | 73    | 2287    | 8    | 617  | 1287 | 146           |      | 127      |     | 5        | 405        | 3              | 97    | 551    | 27         | 10,380 |
| Massachusetts  | Sept. 355   |           | 24        | 45        | 204   | 5     | 377     |      | 4    | 129  | 40            |      | 12       |     | 83       |            | 3              | 75    | 4      | 1,590      |        |
| Sept. 103      | 117         | 3424      | 162       | 364       | 1635  | 39    | 3615    | 16   | 901  | 1764 | 270           | 5    | 130      | 49  | 693      | 13         | 140            | 637   | 59     | 14,130     |        |
| Michigan       | Sept. 982   |           | 24        | 28        | 621   | 14    | 878     |      | 427  | 283  | 16            |      | 35       |     | 181      |            | 43             | 238   | 4      | 3,702      |        |
| Sept. 8407     | 36          | 42        | 168       | 303       | 4053  | 187   | 8125    | 6    | 2529 | 2599 | 125           |      | 369      |     | 1146     | 5          | 329            | 1983  | 95     | 30,590     |        |
| Minnesota      | Sept. 523   |           | 24        | 12        | 234   | 10    | 384     |      | 2    | 118  | 238           | 15   | 1        | 14  |          | 106        | 1              | 16    | 122    | 4          | 1,831  |
| Sept. 5302     | 46          | 1         | 74        | 2080      | 154   | 4465  | 30      | 1032 | 3133 | 116  | 9             | 185  | 9        | 101 | 10       | 196        |                | 1169  | 46     | 19,314     |        |
| Mississippi    | Sept. 419   |           | 10        | 1         | 109   |       | 240     |      | 118  | 120  | 3             |      | 9        |     | 321      |            | 5              | 43    | 4      | 1,114      |        |
| Sept. 1046     |             |           | 62        | 1151      | 22    | 319   |         | 905  | 1375 | 96   |               |      | 138      |     | 473      |            | 58             | 929   | 22     | 13,321     |        |
| Missouri       | Sept. 1046  |           | 10        | 358       | 2     | 643   |         | 196  | 205  | 3    |               |      | 11       |     | 107      |            | 30             | 232   | 8      | 2,071      |        |
| Sept. 8084     | 4           | 7         | 142       | 2605      | 26    | 5856  |         | 1557 | 3023 | 78   |               |      | 187      |     | 911      | 1          | 247            | 1804  | 70     | 24,751     |        |
| Montana        | Sept. 258   |           | 25        | 96        | 7     | 180   |         | 1    | 509  | 1219 | 27            |      | 1        | 158 |          | 446        | 5              | 54    | 1049   | 27         | 6,407  |
| Sept. 2101     | 7           |           | 142       | 7         | 817   | 69    | 1760    | 7    | 509  | 1219 | 27            |      | 1        | 158 |          | 446        | 5              | 54    | 1049   | 27         | 6,407  |
| Nebraska       | Sept. 450   |           | 43        | 162       | 2     | 311   |         | 192  | 244  | 7    |               |      | 10       |     | 70       |            | 11             | 147   | 1      | 1,589      |        |
| Sept. 3712     |             | 333       | 6         | 1355      | 30    | 2737  | 10      | 713  | 2233 | 70   | 1             |      | 83       |     | 635      |            | 107            | 1261  | 27     | 13,311     |        |
| Nevada         | Sept. 36    |           | 3         | 20        |       | 36    |         | 1    | 13   | 23   |               |      |          |     | 13       |            |                | 6     | 1      | 132        |        |
| Sept. 347      | 1           | 14        | 1         | 187       | 2     | 296   |         | 4    | 105  | 147  | 4             |      | 4        |     | 119      |            | 4              | 89    | 9      | 1,132      |        |
| New Hampshire  | Sept. 68    |           | 1         | 3         | 28    |       | 59      |      | 160  | 256  | 38            |      | 2        |     | 13       |            | 1              | 20    | 1      | 283        |        |
| Sept. 686      | 5           | 11        | 13        | 28        | 284   | 4     | 828     |      | 1    | 285  | 281           | 45   | 27       | 2   | 110      |            | 13             | 185   | 12     | 2,483      |        |
| New Jersey     | Sept. 591   |           | 32        | 23        | 278   | 14    | 477     |      | 2    | 285  | 281           | 45   | 32       |     | 117      |            | 36             | 179   | 11     | 2,449      |        |
| Sept. 168      | 314         | 4757      | 313       | 311       | 1887  | 122   | 3787    | 20   | 1762 | 2347 | 488           |      | 164      | 7   | 859      | 11         | 278            | 1360  | 116    | 19,071     |        |
| New Mexico     | Sept. 190   |           | 8         | 1         | 358   | 2     | 181     |      | 50   | 49   | 2             |      | 2        |     | 32       |            | 3              | 7     | 1      | 557        |        |
| Sept. 1598     | 2           |           | 42        | 4         | 434   | 18    | 1026    | 2    | 320  | 499  | 13            |      | 21       |     | 196      |            | 35             | 225   | 18     | 4,481      |        |
| New York       | Sept. 874   |           | 99        | 59        | 875   | 10    | 910     | 5    | 395  | 467  | 122           |      | 98       | 1   | 168      |            | 2              | 72    | 325    | 36         | 4,520  |
| Sept. 443      | 880         | 10531     | 940       | 744       | 6338  | 399   | 8741    | 100  | 3972 | 6188 | 1524          | 53   | 752      | 41  | 2160     | 133        | 888            | 3371  | 399    | 48,594     |        |
| North Carolina | Sept. 612   |           | 7         | 6         | 304   | 3     | 571     |      | 104  | 171  | 21            |      | 9        |     | 109      |            | 24             | 255   | 15     | 2,214      |        |
| Sept. 663      | 41          | 2         | 47        | 2307      | 62    | 5322  | 135     | 808  | 1855 | 440  |               |      | 189      | 2   | 950      |            | 226            | 1732  | 214    | 21,250     |        |
| North Dakota   | Sept. 1531  |           | 111       | 589       | 57    | 1474  | 5       | 285  | 1187 | 33   |               |      | 70       |     | 78       |            | 3              | 105   | 1      | 1,240      |        |
| Sept. 922      | 4           | 1         | 33        | 24        | 458   | 7     | 787     |      | 320  | 443  | 24            |      | 41       |     | 148      |            | 74             | 239   | 16     | 3,541      |        |
| Ohio           | Sept. 10051 | 291       | 287       | 4258      | 187   | 8116  | 26      | 2593 | 4961 | 328  |               |      | 431      |     | 1580     |            | 4              | 774   | 2496   | 198        | 38,683 |
| Oklahoma       | Sept. 578   |           | 4         | 11        | 181   |       | 498     |      | 5    | 94   | 237           | 2    |          | 13  |          | 77         |                | 9     | 151    | 7          | 1,880  |
| Sept. 5165     | 3           |           | 44        | 34        | 1561  | 25    | 4174    | 45   | 879  | 2469 | 38            |      | 208      |     | 625      | 1          | 129            | 1304  | 40     | 16,744     |        |
| Oregon         | Sept. 302   |           | 10        | 2         | 285   | 2     | 234     |      | 134  | 166  | 8             |      | 10       | 3   | 113      |            | 20             | 133   | 24     | 1,452      |        |
| Sept. 1        | 57          | 1         | 99        | 19        | 1629  | 57    | 2254    | 6    | 1086 | 1811 | 121           |      | 100      | 25  | 768      |            | 168            | 1105  | 275    | 12,438     |        |
| Pennsylvania   | Sept. 1011  |           | 61        | 5         | 669   | 25    | 1103    | 1    | 441  | 512  | 86            |      | 62       | 2   | 246      |            | 111            | 312   | 40     | 4,770      |        |
| Sept. 318      | 542         | 11064     | 600       | 115       | 5384  | 270   | 9690    | 12   | 3553 | 5770 | 977           | 25   | 586      | 43  | 2312     | 5          | 958            | 3243  | 253    | 48,720     |        |
| Rhode Island   | Sept. 97    |           | 3         | 4         | 32    |       | 52      |      | 11   | 40   | 3             |      | 10       |     | 17       |            | 7              | 20    | 2      | 304        |        |
| Sept. 25       |             | 67        | 134       | 409       | 10    | 665   |         | 251  | 550  | 50   |               |      | 64       | 7   | 189      |            | 66             | 208   | 33     | 3,029      |        |
| South Carolina | Sept. 277   |           | 2         | 4         | 89    |       | 222     |      | 61   | 50   | 1             |      | 6        |     | 31       |            | 3              | 79    | 1      | 826        |        |
| Sept. 3538     | 2           |           | 5         | 998       | 14    | 2355  |         | 546  | 715  | 73   |               |      | 107      |     | 33       |            | 77             | 649   | 42     | 9,409      |        |
| South Dakota   | Sept. 197   |           | 12        | 1         | 61    |       | 128     |      | 31   | 88   | 4             |      | 3        |     | 34       |            | 2              | 100   | 3      | 804        |        |
| Sept. 1361     |             | 125       | 4         | 608       | 42    | 1161  |         | 326  | 1303 | 15   |               |      | 103      |     | 312      |            | 26             | 751   | 20     | 6,157      |        |
| Tennessee      | Sept. 604   |           | 6         | 8         | 195   | 8     | 338     |      | 192  | 192  | 8             | </   |          |     |          |            |                |       |        |            |        |

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You find fewer candidates for the paint shop when your fleet is protected with tough, durable "DULUX" Enamel! For years the No. 1 choice of fleet operators, "DULUX" proves itself *on the road*—by keeping its handsome gloss and color longer, despite severe weather and rough handling.

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**AUTOMOTIVE ENAMEL**

BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY



## DODGE ROUTE-VAN PRICES

Prices have just been announced on the new Dodge "Job-Rated" route-vans. The door-to-door deliveries, built in three wheel-base lengths range in price from \$2595 to \$2990, factory retail at Detroit, exclusive of federal excise taxes. A breakdown follows:

|        |             |        |
|--------|-------------|--------|
| DU 102 | 7-ft body   | \$2595 |
| DU 11  | 9½-ft body  | \$2690 |
| EU 102 | 7-ft body   | \$2755 |
| EU 117 | 9½-ft body  | \$2850 |
| EU 142 | 12½-ft body | \$2990 |

## BRAKE TESTS STARTED

The first of a regional series of commercial vehicle brake tests has been started by the Federal Public Roads Adm. on Route 40 between Elkton and Havre de Grace, Md. These tests are made on vehicles selected at random from traffic using the highway passing the test station. Drivers are asked to volunteer to have the stopping ability of their brakes checked by the test crew. No enforcement action will result.

The aim of these tests is to determine practical standards for stopping performance of commercial vehicles and to devise procedures for enforcement of accepted performance standards. The field test parties are headed by Carl Saal.

## SHIPMENT MINIMUM RAISE

The Interstate Commerce Commission has authorized motor common carriers to increase minimum charges approximately 50 per cent per shipment for transportation between points in truck-line territory and between points in that territory and New England.

The higher minimum charges proposed by carriers parties to certain tariffs of the Middle Atlantic States Motor Carrier Conference and the New York-New Jersey Tariff Bureau were suspended by the ICC upon protests of shippers.

## SEEK RATE CONTROL

The first application for collective rate-making authority under a new law freeing such activities from prosecution for anti-trust law violations has been filed with the Interstate Commerce Commission by the Household Goods Carriers Bureau, Inc.

## DATES AND DOINGS

DEC. 6-10 — Automotive Service Industries Show, Navy Pier, Chicago.

DEC. 9-11—Montana Motor Transport Assn. Convention, Northern Hotel, Billings, Mont.

JAN. 10-14—SAE Annual Meeting, Book-Cadillac Hotel, Detroit, Mich.

JAN. 17-19—Truck-Trailer Mfrs. Assn., Inc., Annual Convention, Edgewater Gulf Hotel, Edgewater Park, Miss.

JAN. 27-28—National Council of Private Motor Truck Owners Annual Meeting, Claypool Hotel, Indianapolis, Ind.

MARCH 28-30—Society of Automotive Engineers National Transportation Meeting, Statler Hotel, Cleveland, Ohio.

## SUN ELECTRIC SCHOOL

The Sun Electric Corp., Chicago, has under construction a new building for the training of garage and truck fleet personnel in electrical testing and engine tune up. This is the first of thirty such schools which will be located in principal cities across the continent. They are designed to improve the quality of automotive service by stressing the importance of complete and thorough diagnosis of vehicles troubles prior to repair work. The new school in Chicago will be opened the first of the year.

## SEPTEMBER TRUCKLOADINGS UP

The volume of freight transported by motor carriers in September increased 2.0 per cent over August and 12.8 per cent over September 1947, according to statistics compiled by the Department of Research, American Trucking Associations, Inc.

Comparable reports received by ATA from 287 carriers in 44 states showed these carriers transported an aggregate of 2,807,215 tons in September, as against 2,752,325 tons in August and 2,489,496 tons in September, 1947.

The ATA index figure, computed on the basis of the average monthly tonnage of the reporting carriers for the three-year period of 1938-1940 as representing 100, reached an all-time high of 248.

Approximately 79 per cent of all tonnage transported in the month was hauled by carriers of general freight.

## RAIL INCREASE DENIED

The Interstate Commerce Commission has denied a request of the eastern railroads for class rate increases in less-than-carload shipments which would have brought a 9 per cent increase in revenue on such traffic. The railroads sought rate increases ranging from 95 per cent on 5-mile hauls to 1.5 per cent on long hauls. ICC declared the proposed increases had not been shown to be "reasonable and just, or non-prejudicial and non-preferential."

## FRUEHAUF INSTALLMENT CONTRACT

The Fruehauf Trailer Co. has announced the formation of Fruehauf Trailer Sales, Inc. for the purpose of financing truck-trailer installment purchase contracts for periods as long as five years.

The new company, negotiating through Lehman Brothers and Watling, Lerchen & Co., has concluded arrangements with a life insurance company to borrow up to \$30,000,000. The loan will be evidenced by collateral trust debentures. Proceeds of the borrowing will be used to acquire equipment installment notes from Fruehauf Trailer Co.

The amount received by Fruehauf Trailer Company upon the initial sale of such notes under this arrangement, to the extent of \$9,000,000 is to be applied to reduction of current bank loans. Reflecting this transaction, the pro forma balance sheet of Fruehauf Trailer Co., as of August 31, 1948, showed current assets of \$55,268,918 and current liabilities of \$14,211,448.

All loans under the new installment program will be tailored to the individual company and to particular conditions involved in each loan. In other words they will all be on an individual basis. Some companies will not qualify for the full five-year term and also down payments will vary according to the status of the company.

## SNEAD SLATED FOR SAE

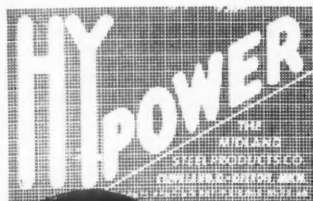
John L. S. Snead, Jr., vice president, operations and maintenance, Consolidated Freightways, Inc., Portland, Ore., has been nominated for the office of vice president representing Transportation and Maintenance Activity of the National Society of Automotive Engineers.

(TURN TO PAGE 90, PLEASE)



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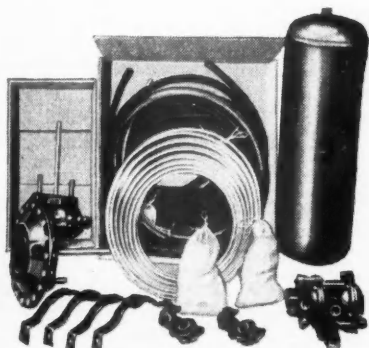
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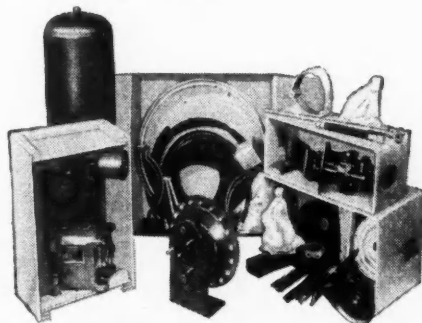
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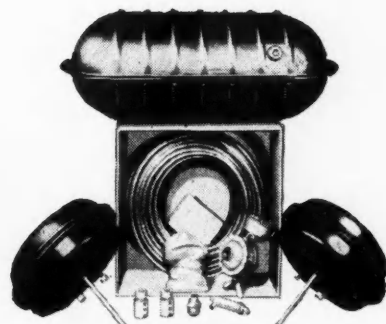
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# MIDLAND

## POWER BRAKES

## 1948 Domestic Truck Factory Sales by Gross Vehicle Weights\*

|                | 5,000<br>& Less | 5,001-<br>10,000 | 10,001-<br>14,000 | 14,001-<br>16,000 | 16,001-<br>19,500 | 19,501-<br>26,000 | Over<br>26,000 | Total   |
|----------------|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|----------------|---------|
| January.....   | 28,690          | 15,458           | 11,641            | 17,685            | 5,615             | 3,166             | 1,638          | 83,893  |
| February.....  | 32,776          | 15,823           | 12,308            | 16,733            | 5,983             | 3,668             | 1,800          | 88,889  |
| March.....     | 44,110          | 21,222           | 15,890            | 24,237            | 6,708             | 4,437             | 1,968          | 118,572 |
| April.....     | 43,441          | 20,671           | 13,910            | 21,163            | 6,667             | 4,039             | 2,020          | 111,911 |
| May.....       | 37,114          | 17,132           | 13,898            | 18,386            | 4,734             | 4,018             | 1,627          | 98,909  |
| June.....      | 37,244          | 19,741           | 13,503            | 18,794            | 6,310             | 4,371             | 1,792          | 101,755 |
| July.....      | 35,481          | 20,716           | 13,105            | 19,038            | 5,083             | 3,501             | 1,345          | 98,249  |
| August.....    | 38,554          | 20,744           | 13,538            | 16,421            | 3,595             | 2,856             | 1,514          | 97,222  |
| September..... | 33,884          | 23,303           | 11,329            | 15,211            | 4,946             | 4,065             | 1,458          | 94,196  |
| Totals.....    | 331,294         | 174,610          | 119,122           | 167,668           | 49,621            | 34,119            | 15,162         | 691,596 |

\* Automobile Manufacturers Association.

## CCJ Newscast 1948 Truck Trailer Production\*

|  | September    | Nine<br>Months |
|--|--------------|----------------|
| <b>Vans:</b>                           |              |                |
| Insulated and refrigerated.....        | 185          | 1,088          |
| Furniture.....                         | 39           | 415            |
| All other closed top.....              | 1,493        | 13,323         |
| Open top.....                          | 159          | 1,432          |
| <b>Total Vans.....</b>                 | <b>1,876</b> | <b>16,330</b>  |
| <b>Platforms:</b>                      |              |                |
| With cattle and stake racks.....       | 127          | 1,280          |
| With grain bodies.....                 | 65           | 480            |
| All other.....                         | 515          | 3,794          |
| <b>Total Platform.....</b>             | <b>727</b>   | <b>5,482</b>   |
| <b>Tanks:</b>                          |              |                |
| Patroleum.....                         | 255          | 2,471          |
| All other.....                         | 33           | 380            |
| <b>Total Tanks.....</b>                | <b>288</b>   | <b>2,777</b>   |
| <b>Pole and Logging:</b>               |              |                |
| Single Axle.....                       | 133          | 1,725          |
| Tandem Axle.....                       | 117          | 1,368          |
| <b>Total.....</b>                      | <b>250</b>   | <b>3,111</b>   |
| Low-bed heavy haulers.....             | 164          | 1,428          |
| Off-highway.....                       | 25           | 554            |
| Dump Trailers.....                     | 127          | 2,186          |
| All other trailers.....                |              |                |
| <b>Total Complete Trailers.....</b>    | <b>3,457</b> | <b>32,390</b>  |
| Trailer Chassis.....                   | 137          | 1,559          |
| <b>Total Trailers and Chassis.....</b> | <b>3,594</b> | <b>33,889</b>  |

\* Industry Division, Bureau of the Census.

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# HEAD GASKETS

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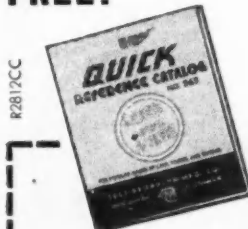
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INDIVIDUALLY OR IN FULL SETS



**FREE!**



When you install Fel-Pro Head Gaskets you get original-equipment precision and quality. That means you get long-time protection, even under difficult service conditions. Fel-Pro has everything else you want in Gaskets, Oil Pan Gasket Sets, Full Gasket Sets, Packings and Grease Retainers.

FELT PRODUCTS MFG. CO., CHICAGO, ILL.



FELT PRODUCTS MFG. CO., 1520 Carroll Ave., Chicago 7, Ill.  
Gentlemen: Please send me without cost or obligation, a copy of the new "Quick-Reference" Gasket Catalog.

My Name.....

Address.....

City..... State.....

## LABORATORY FOR STUDY OF CYLINDER WEAR

A new laboratory for the study of automotive engine performance has been installed at the National Bureau of Standards. Equipped with completely automatic controls, this laboratory offers a means of closely simulating actual operating conditions in such a way that tests can be reliably duplicated. While designed primarily for investigations of cylinder wear, the new equipment may also be used in studying the effects of various types of fuels and lubricating oils on pistons, piston rings.

(TURN TO PAGE 93, PLEASE)

## Oshkosh W-2200 Series



Another "heavy-heavy" 4-wheel drive truck, Model W-2206, added to the Oshkosh W-2200 series has a grw of 54,000 lb and a chassis weight of 18,700 lb. The W-2206 is powered by a Hall-Scott 400 gasoline engine with a displacement of 1090 cu in. and develops 295 bhp at 2000 rpm. Rated maximum torque is 930 lb ft. Features of truck include hydraulic power steering, 10 1/2 in. x 3 1/2 in. x 3/4 in. chrome manganese alloy steel double frame, heavy-duty double-reduction axles, 10 speeds forward, automatic locking center differential, herringbone gears in transfer case, 13:00/24 or 14:00/24 tires, and deluxe cab with level-ride seat.

## CCJ Newscast

(CONTINUED FROM PAGE 90)

bearings, and carburetors. A problem under investigation at the present time is the determination of the amount of sulfur that can be tolerated in gasolines without appreciably increasing wear.

The automatic test equipment utilizes a battery of five automotive engines from three popular makes of automobiles. The extent of cylinder wear is determined by use of the McKee Wear Gage, which employs a sensitive indentation method developed at the National Bureau of Standards.

### INDUSTRIAL NOTES

Installation in Richmond, Va., of a new wholesale branch sales operation for the General Tire & Rubber Co. under the direction of John W. Bogle has been announced.

Crosley Motors, Inc., has adopted exhaust valve rotators on the Crosley engine. The valve rotators are an application of the Thompson-Products "RotoCap" device specially calibrated for the Crosley engine.

The Ohio Piston Co., of Cleveland, has just been acquired by four of its principal management and production executives headed by General Manager Dan P. Shaw.

The Trailmobile Co. of Cincinnati 9, Ohio, announces the appointment of The Trailer Co. of Harrisburg, Pa., as exclusive distributors of their complete line of trailers, truck bodies, etc., in the Harrisburg area. C. S. Mock, former Trailmobile branch manager, will head the new distributor at Harrisburg.

The Goodyear Tire & Rubber Co. has announced plans for a 50 per cent conversion of its synthetic rubber manufacturing facilities for the production of a revolutionary "cold" rubber, giving greatly increased tire mileage.

Goodyear's expansion is part of the government's program to step-up the output of this material from 21,000 to 183,000 long tons a year.

Guaranteed Parts Co., Inc., manufacturers of "Guaranteed" and "4 Star" ignition parts, announces the opening of a new warehouse located at 1119 Pike Street at Minor, Seattle, Washington.

Mid West Body & Manufacturing Division, Paris, Illinois, has introduced as a companion line to its heavy-duty open truck bodies a new line of specially-designed bodies for ¾ ton trucks, to be known as the "Leader" line. These new 8-foot bodies are being produced in a commercial stake and platform model, a combination grain and high rack model with the top rack sections folding down to provide a universal use feature, and as a grain body equipped with hinge brackets for Fold Down rack sections.

New Products Corp., 506 South Wabash Ave., Chicago, Illinois, has recently concluded a licensing arrangement of their patent holdings to Clark Equipment Co. in the bus, truck, industrial and agricultural fields. New Products Corporation is the pioneer of the automatic transmission development having introduced a Mono Drive in 1936.

The Sinclair Refining Co. recently opened its ultra modern research and development laboratories at Harvey, Ill. Heart of the company's 150 million dollar overall expansion program, the new research center costing several millions, will guide the operations involved in the production of petroleum derivatives.

Expanding its facilities for manufacture of the Sparton Horn and other automotive equipment, the Sparks-Withington Co., of Jackson, Mich., has purchased the total assets of the Teleoptic Company, Racine, Wis., Makers of automatic safety equipment.

Preventative maintenance of FWD trucks is the keynote of the FWD Service School conducted by the Service Department of The Four Wheel Drive Auto Co., at Clintonville, Wis., for its dealers' servicemen. The company regularly holds two-week intensive training programs in which they learn how to drive an FWD truck, how to grease it properly, how to see that it has proper lubrication at all points, how to assemble and how to disassemble.

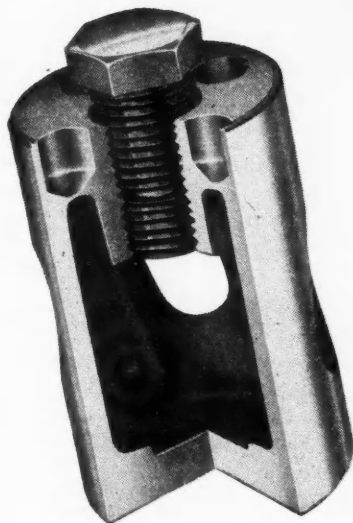
An export corporation, Ward LaFrance International, Inc., is being organized under the supervision of A. Ward LaFrance.

(TURN TO PAGE 192, PLEASE)

## V-8 VALVE JOBS MADE EASY!

with *Johnson*

### ADJUSTABLE TAPPETS



Do the job right! Install Johnson Adjustable Tappets in Ford and Mercury V-8's (85-100 HP engines).

You need no expensive shop equipment. You can make installations in half the ordinary time and without the task of fitting valves.

Special spanners, included with each set of tappets, leave both hands free for quicker and more accurate adjustments.

Patented Johnson Self-Locking Tappet Screw maintains its original setting for many thousands of miles.

The millions of Johnson Tappets in use today are giving dependable service and providing smooth, quiet engine performance.

You'll find that you will make larger profits and gain more satisfied customers when you install Johnson Adjustable Tappets.

**SEE YOUR JOBBER**

*Johnson* PRODUCTS INC.  
MUSKEGON, MICHIGAN

"Tappets Are Our Business"



# you get more work out of Mack Trucks



Hard-working Mack trucks play a big part in the extensive operations of Johnson Motor Lines, Inc. This company's 169 trucks serve the important Atlantic Seaboard markets from headquarters in Charlotte, N. C. and other points throughout North and South Carolina.

## because..we put more work into Macks



No set of Mack timing gears has ever worn out. Mack makes them tough by case-hardening, then generator grinds the teeth for everlasting durability. Mack was the first to develop machines for generator grinding of helical gears. Mack is still the only manufacturer to use case-hardened, generator-ground timing gears.

# Mack

trucks for every purpose

Mack Trucks, Inc., Empire State Building, New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Ltd.

6219-1

SINCE 1900, AMERICA'S HARDEST-WORKING TRUCK

# Truck Specifications Table

OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY

## COMMERCIAL CAR JOURNAL

The following changes in truck specifications have been received from manufacturers since publication of the Commercial Car

Journal Truck Specifications Table in the November issue.

Readers are requested to make note of these changes.

Publication of the entire specifications table, with up to date corrections will be resumed in the January, 1949, issue.

### FEDERAL

Gross vehicle weights for all models except six-wheelers are as follows:

|                 |                 |
|-----------------|-----------------|
| 16M.....15500   | 29MLA.....21500 |
| 16M2.....15500  | 35M.....22500   |
| 18M.....17000   | 35M2.....22500  |
| 18M2.....17000  | 45M.....26000   |
| 25M.....19000   | 45M2.....26000  |
| 25M2.....19000  | 55M2.....30000  |
| 28M.....21500   | 55MA.....30000  |
| 29M2.....21500  | 60MA.....32000  |
| 29MA.....21500  | 60M2.....32000  |
| 29ML.....21500  | 65M2.....33000  |
| 29ML2.....21500 | 65MA.....33000  |

In addition compression ratios for models 663MA, 664MAB and 664MA have been deleted.

### FORD

Chassis weights for all models are as follows:

|           |              |      |
|-----------|--------------|------|
| F-1       |              |      |
| Cowl..... | 8HC-84.....  | 2224 |
| Cowl..... | 8RC-84.....  | 2264 |
| F-2       |              |      |
| Cowl..... | 8HD-84.....  | 2637 |
| Cowl..... | 8RD-84.....  | 2677 |
| F-3       |              |      |
| Cowl..... | 8HY-84.....  | 2847 |
| Cowl..... | 8RY-84.....  | 2887 |
| F-4       |              |      |
| Cowl..... | 8HTL-84..... | 3328 |
| Cowl..... | 8RTL-84..... | 3368 |
| F-5       |              |      |
| Cowl..... | 8HT-84.....  | 3758 |
| Cowl..... | 8RT-84.....  | 3798 |
| Cowl..... | 8H8T-84..... | 3848 |
| Cowl..... | 8R8T-84..... | 3888 |

### F-5 C.O.E.

|          |              |      |
|----------|--------------|------|
| Cab..... | 8HOW-81..... | 4123 |
| Cab..... | 8ROW-81..... | 4163 |
| Cab..... | 8HW-81.....  | 4283 |
| Cab..... | 8RW-81.....  | 4323 |
| Cab..... | 8H8W-81..... | 4383 |
| Cab..... | 8R8W-81..... | 4423 |

### F-5 School Bus

|               |              |      |
|---------------|--------------|------|
| Bus Cowl..... | 8H8T-84..... | 3855 |
| Bus Cowl..... | 8R8T-84..... | 3895 |
| Bus Cowl..... | 8H4T-84..... | 4260 |
| Bus Cowl..... | 8R4T-84..... | 4300 |

### F-6

|           |               |      |
|-----------|---------------|------|
| Cowl..... | 8HTH-84.....  | 4069 |
| Cowl..... | 8RTH-84.....  | 4109 |
| Cowl..... | 8H8TH-84..... | 4169 |
| Cowl..... | 8R8TH-84..... | 4209 |

### F-6 C.O.E.

|          |               |      |
|----------|---------------|------|
| Cab..... | 8HOWH-81..... | 4569 |
| Cab..... | 8ROWH-81..... | 4609 |
| Cab..... | 8HWH-81.....  | 4728 |
| Cab..... | 8RWH-81.....  | 4768 |
| Cab..... | 8H8WH-81..... | 4828 |
| Cab..... | 8R8WH-81..... | 4868 |

### F-7

|           |              |      |
|-----------|--------------|------|
| Cowl..... | 8EQ-84.....  | 5388 |
| Cowl..... | 8E9Q-84..... | 5498 |
| Cowl..... | 8E5Q-84..... | 5618 |

### F-8

|           |               |      |
|-----------|---------------|------|
| Cowl..... | 8EQH-84.....  | 5659 |
| Cowl..... | 8E9QH-84..... | 5769 |
| Cowl..... | 8E5QH-84..... | 5889 |

In addition the following changes have been made in the F-8 series:

| Model    | GVW  | Make    | Rear Axle Ratio |
|----------|------|---------|-----------------|
| 8EQH-84  | 3155 | Own 8QH | **7.17          |
| 8E9QH-84 | 3205 | Own 8QH | **7.17          |
| 8E5QH-84 | 3255 | Own 8QH | **7.17          |

\*\* Only one ratio.

### FWD

Frame side rail dimensions on models M7D and M10 are:  $10\frac{1}{16} \times 3 \times 11\frac{1}{32}$   
Chassis weight of model M10D is 16,400 lb.

CA dimension (with max. standard wheelbase) for models M6x6 and M6x6D is 120 in.

### INTERNATIONAL

Main bearing sizes in inches have been changed as follows:

|            |                                      |
|------------|--------------------------------------|
| Model KB-6 | $2\frac{3}{8} \times 4\frac{17}{64}$ |
| Model KB-7 | $2.7 \times 4\frac{17}{64}$          |

In addition four school buses mounted on KB-5, KB-6, KB-7 and KB-8 chassis will be included in the January issue.

### MARMON-HERRINGTON

Gross Vehicle Weight of model MH555-4 is 30,000 lb.

### OSHKOSH

Complete specifications of new model W2206 (54,000 lb gvw) will be included in January issue.

Frame type on model W2205 is LF (channel reinforced with liner and plate).

### PETERBILT

Transmission on all models is Spicer 8041.

Front axle on models 354DT and 355DT is Timken 27463.

### WARD LA FRANCE

Maximum brake horsepower on models D-1 and D-1C is 152 @ 2600 rpm.

Maximum tire size on model D-5 is 11.00/24.

See November Issue P. 115 for Specifications on Other Models



... FRANK T. KALAS, vice-president in charge of sales and a director of The Electric Storage Battery Co., retired after 49 years of service with the company.

... L. D. YAGER, as division manager of the Detroit sales office, Automotive Division, Reynolds Metals Co.

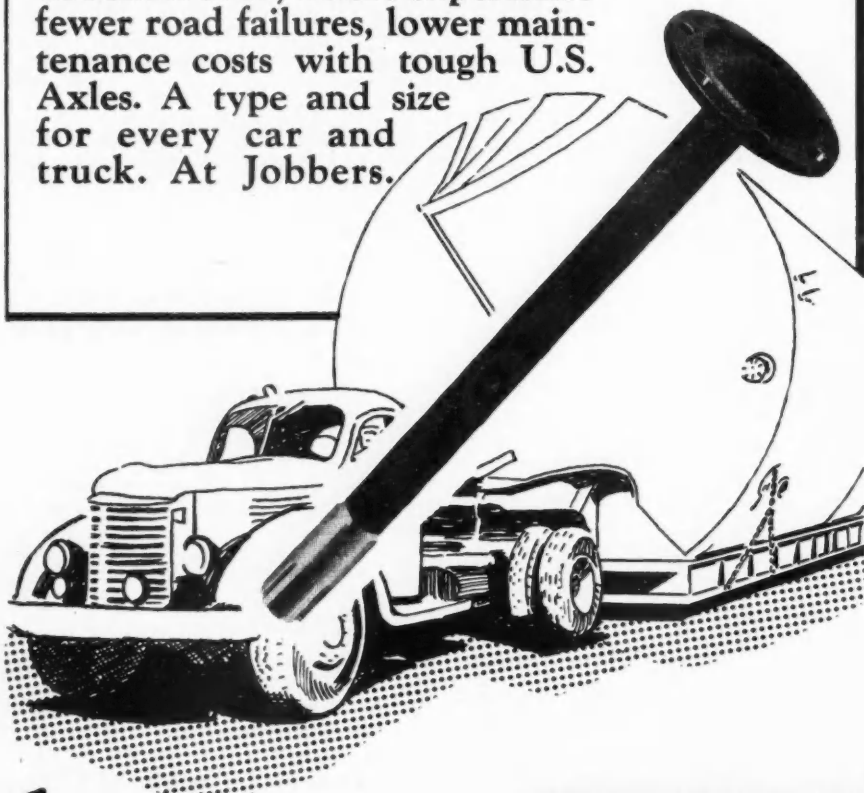
... L. S. PETROVICH, appointed to the advertising department of the Dill Mfg. Co., Cleveland, Ohio.

... DON MCKIM, new general sales manager of F & B Mfg. Co., Chicago.

... JACK F. WHITAKER, vice-president of Whitaker Cable Corp., Kansas City, Mo., now vice-president in charge of sales.

## Tough U.S. Axles for tough hauls

Truckers everywhere experience fewer road failures, lower maintenance costs with tough U.S. Axles. A type and size for every car and truck. At Jobbers.



**Free** Latest catalog. Contains listings U.S. replacements for all types cars, trucks, also army surplus trucks. Write The U.S. Axle Co., Inc., Pottstown, Pa.

# US AXLES

... P. N. McREYNOLDS, appointed to the sales staff of Burd Piston Ring Co., Rockford, Ill.

... SAMUEL D. STANTON, appointed general manager of the Northeastern Department of Railway Express Agency, with headquarters at Boston, Mass.

... HERMAN P. DUNLAP, appointed executive assistant to the president, Railway Express Agency, with headquarters at 230 Park Avenue, New York City.

... D. C. WILKINSON, as district manager Maremont Automotive Products, Inc., Chicago.

... ROLAND WHITEHURST, elected vice-president in charge of sales, The Electric Storage Battery Co., Philadelphia.



... DAVID A. MRCALF, as truck representative in the South Bend region of The Studebaker Corp.



... ARTHUR STYRON, appointed manager of the Replacement Sales Division, Thermoid Co. of Trenton.



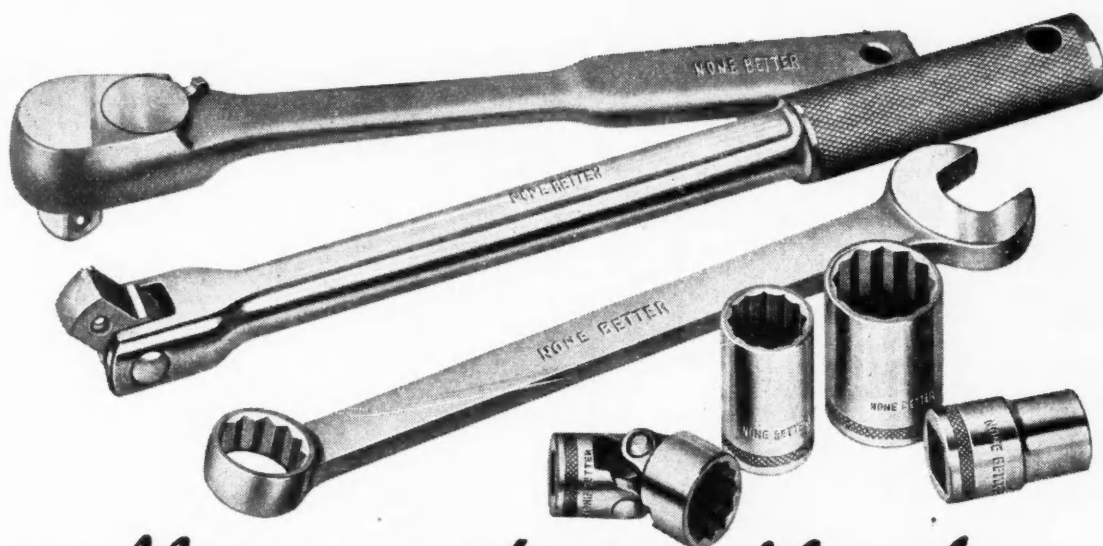
... E. W. WINDSOR, general manager of automotive sales, Sherwin-Williams Co., Cleveland, Ohio.

... R. D. HILLER, Jr., south central regional manager with headquarters at Tulsa, Okla., for Gar Wood Industries, Inc.



... J. L. COCHRUN (left) as new executive vice-president of Seiberling Rubber Co.; L. M. SIEBERLING (center) as vice-president in charge of sales, and CHARLES A. REED (right) as general sales manager.





*It's your Money and your Muscle....  
So, why not Save both with —*

# NONE BETTER

## HAND TOOLS



### UTILITY TOOL SET

The most economical way to buy these economical Hand Tools is in compact Sets like this 50-piece Utility Tool Set. That way, you're certain of a balanced collection of Tools to meet your needs. And the sturdy NONE BETTER Tool Kit is, in itself, something to have! Convenient time payments can be arranged. Write for your NONE BETTER Jobber's name today... ask him for full details.

Looking for value in Hand Tools? You'll find it in NONE BETTER... the big VALUE that's your best bet for long-run economy. These quality Hand Tools live long, useful lives. They're famous for durability... outstanding for compact, modern design... and handsome in their bright, triple-plated, Chrome Finish. They're made to give you more for your Hand Tool dollar!

#### PRACTICAL HAND TOOLS

NONE BETTER Hand Tools produce on the job! They give you the working speed that fleet maintenance requires. Each Tool is planned for maximum utility... planned for tough, heavy-duty action... you get more done with less effort. Drive Parts have that long-reaching slimmness and easy-handling light weight. Sockets have that snug non-slip fit on the nut! And you've never handled Wrenches that pack more pull into less bulk!

#### A COMPLETE LINE

NONE BETTER value is part and parcel of every Tool in this com-

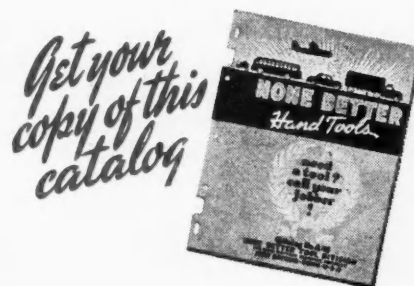
plete Line. There's a full range of Hand Tool selection, covering every phase of truck repair and maintenance. You'll find balanced, economical Sets of all types, and individual Tools for every specialized service need.

#### GUARANTEED

NONE BETTER Hand Tools are fully guaranteed. Write TODAY for the name and address of your nearby NONE BETTER Jobber... he's the man to see for Hand Tools that save you money and muscle!

#### NONE BETTER HAND TOOL DIVISION

The New Britain Machine Company  
New Britain, Conn.



## ... Safe Drivers

(CONTINUED FROM PAGE 69)

able as related to contributions to good will and possible future company advancement.

6. Vocational interest . . . valuable in general rating of applicant.

7. Attitude scales . . . to rate applicant's attitude toward other drivers, enforcement officers and safe driving habits.

8. Traffic and driving knowledge . . . to learn applicant's training needs.

9. Driving skill tests . . . best taken in

a yard or closed area, to reveal his starting, steering, stopping habits.

10. Road test in traffic . . . best tested over a checked route.

11. Psycho-physical tests . . . to include the common tests for acuity of vision, field of vision, distance judgment, night vision, color vision, simple reaction time.

12. Demonstration tests . . . to include proof of distances required to stop when at certain speeds. Another test is the use of a "buzzer box" placed in a truck, which is sounded off by any type of rough driving. Another is a "tumbler box," in which little cylinders set upright will fall when quick starts or stops are made.

Neyhart also listed certain test "limitations." A test will do only what it has been constructed to do. It must be carefully studied to develop its "rating values." Results must be checked within the desired limits. It must be administered in a professional manner. Test results will never stand alone, but must be used in connection with other records. He recommended the following five driver tests as generally most useful to a fleet operator: visual acuity; field of vision; distance judgment; night vision; simple reaction time (the foot test).

### Sadler's Ideal Driver

WM. S. SADLER, JR., Chicago Personnel Management Consultant, talked on "Accident Reduction Through Psychological Testing." He also views psychological tests as only "one of the tools" which may be used in driver selection, to aid in eliminating accident prone and unstable types.

He thinks a balanced testing program should include (1) guided interview; (2) suitable battery of psychological tests; and (3) sound series of physiological tests. The guided interview should enable the detection, without special tests, of four types of the most extreme "personality deviates." He lists these as:

1. The constitutional introvert . . . often tall and thin and delicate, not well muscled, often over fast in response, with low voice and restive eyes.

2. The extreme extrovert . . . often heavy weight, the soft push-around type; overly slow, extremely amiable, lacking force.

3. The extreme extrovert of action . . . the muscular type, excessive action and energy, enjoys risks, gets a thrill out of fast driving, likes physical adventure, always sticking his neck out.

4. The constitutional inadequate . . . hard to rate on physical tests, always tired out, born tired, poor appetite, lacks stamina or guts for a job, but hard to fire for what he does.

The chief value of psychological tests, he thinks, is to enable the employer to learn more about the applicants "basic attitude" toward the prospective job and his emotional stability, through testing his basic likes and dislikes. Sadler briefly described six personality types which he thinks are unsuited as professional drivers, and which psychological tests are planned to eliminate:

1. Psychasthenic . . . dreamers and drifters, who dread the competition of business and tend to day dreams. They may have an inferiority complex and be subject to internal conflicts.

2. Hysteroid . . . with poor emotional control, tend to blow up under pressure, often sensitive and irritable, egotistic and self-centered, childish and emotional, injudicious action when angry or emotional, make much of their aches and pains.

3. Paranoid . . . particular weaknesses and suspicions, envy and jealousy, stubborn and conceited, deficient in sense of proportions, resent restrictions and company discipline, reckless, trouble makers in groups.

4. Mood swinging . . . have manic overdrives, lack stability, attempt too much, (TURN TO PAGE 100, PLEASE)

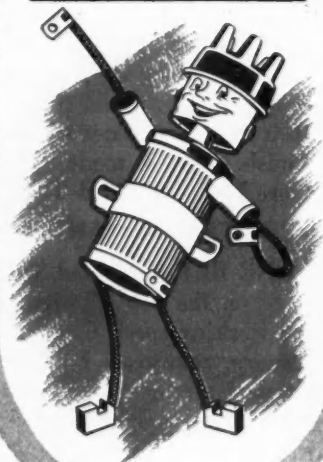
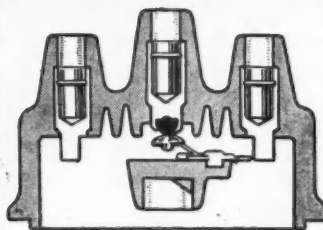
## PEEDEE shows you why you get TOP PERFORMANCE with these DISTRIBUTOR CAPS and ROTORS

Here's a cap that caps 'em all. Examine the heavy plastic molded side walls and top. They give you maximum dielectric strength, minimum water absorption and highest arc resisting or carbon tracking qualities.

Now, see how the solid brass inserts are molded directly into the plastic and supported against the walls to prevent loosening. Notice the careful way the cap is precision machined to assure uniform performance from all cylinders.

And see how the rotor segments are die-stamped to keep an equal clearance between cap and all inserts.

This is just one sample of the high quality materials and skilled workmanship that go into all genuine P&D starting, lighting and ignition replacement parts. Write today and we will send you a copy of Catalog No. 47 which gives full information on how you can make more money with this line.



Turn Out Better Tune-up Jobs With Peede



P&D

MANUFACTURING COMPANY, INC.

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STARTING • LIGHTING • IGNITION

# \$1,000.00

## FOR A

# PISTON RING NAME!

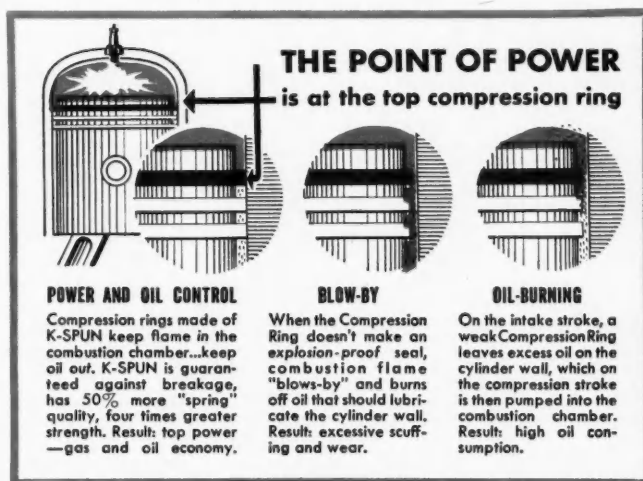
With the development of K-SPUN, the *Miracle Metal for Piston Rings*, Koppers' engineers and metallurgists turned the piston ring business upside down! Now we'll pay \$1000 for a name for the revolutionary American Hammered Piston Ring Set engineered around a top compression ring made of the new miracle metal.

For years, automotive engineers have known that the top compression ring in any internal combustion engine did 85% of the job. But they knew, also that the all-important top compression ring rapidly lost most of its effectiveness because no metal had yet been developed with "guts" enough to give long service in today's high-speed, high-compression engines. *No oil ring has ever been designed that can do the job of the top compression ring.*

Koppers engineering solved the problem with an entirely new piston ring metal. K-SPUN, the new miracle metal for compression rings, is the key to piston ring sets that establish new standards of performance. Top compression rings made of K-SPUN do everything a compression ring *should do . . . and retain their full effectiveness over an amazing period.* In its early stages of development, K-SPUN helped to increase by five times the flying hours between engine overhauls in Allied war planes. Soon it was even further improved and the revolutionary American Hammered Set has already established new records in the toughest kind of fleet service. Now, piston ring sets engineered around compression rings of K-SPUN are available for most cars, trucks, buses, tractors, marine and aviation engines, stationary engines. . . for gas or Diesel service.

Study the chart and consider the outstanding advantages of K-SPUN compression rings, the heart of the revolutionary

American Hammered Piston Ring Set. Then, get to work on that *thousand dollar name!*



### THE AMERICAN HAMMERED KOPPERS K-SPUN COMPRESSION RING...

Won't break during installation or in service . . . 50% more "spring" quality; four times the resistance to combustion shock.

Keeps flame *in* the combustion chamber . . . keeps oil *out* of it!

Permits high unit pressures—that stay put!

Proved in thousands of hours of wartime flying and in millions of miles of tough fleet service.

The first really effective compression ring for today's high-speed, high-compression engines.

We want *you* to name our revolutionary piston ring set. **ACT NOW!** Nothing to buy . . . no entrance fees to pay . . . no special forms to be filled out. *Just follow these simple rules:*

1. The name you suggest should describe the complete set. Something like "Ful-Power"—but you can do better than that!
2. No limit to the number of names you may submit.
3. Any person residing in the continental United States may submit entries—except employees and the families of employees of Koppers Company, Inc., and its advertising agencies.
4. In case of duplication of winning name, duplicate prizes will be awarded.
5. No entries can be returned, and all entries become

the sole property of Koppers Company, Inc.

6. Entries must be postmarked not later than midnight, January 10, 1949.
7. The decision of the judges will be final.

1st prize . . . . . \$1,000.00  
2nd prize . . . . . 500.00  
3rd prize . . . . . 100.00  
50 prizes . . . . . 5.00

Address entries to: "Name Contest," Drawer CC1, Koppers Company, Inc., Piston Ring Department, Box 626, Baltimore 3, Maryland





## ... Safe Drivers

(CONTINUED FROM PAGE 98)

often depressed, and lack self-confidence.

5. Schizoid . . . extreme shyness and timidity, quiet and retiring, highly conscientious, extreme stubbornness and docility, day dreamers, not well socialized, difficult to make adjustments.

6. Psychopathic . . . change work frequently, can't settle down, often fool the interviewer, good personal appearance, vulnerable to alcohol and gambling and sex, superficial alertness and cleverness, defensive for their own ego.

However, Sadler emphasized that in screening driver applicants one can't depend exclusively on interviews, references or psychological tests. The essential final followup is a test of the physical qualities of the applicant—his vision, hearing and physical strength. Sadler thinks there is no one method to screen out the accident prone. The first interview should quickly eliminate the grossly unfit. Then devote more time, through psychological tests, on the tentatively selected few; and the "interpretations" are more important than the tests themselves. The final physical screening must be done by medical experts, to include such hidden constitutional factors

as blood pressure and structure. All three of these techniques—interview screening, psychological tests and physical tests—must be used, to insure selection of high grade applicants and thus cut costs of driver training and accidents.

During the followup question period, one delegate wanted to know if there was "any practical solution to the problem of the present-day don't-give-a-damn attitude by some drivers?" The answer was: "If such an attitude does exist to any great extent in a company, it probably means that there is something wrong with the attitude of top management, to have permitted its development. Company morale either never existed or evidently has died—maybe 5 to 10 years ago, and it has taken that long to work down to the lower management levels."

Another delegate questioned the possibility of developing in the United States "national driver testing standards." The answer was that it probably will require "considerable time," although the I.C.C. has made a beginning toward such standards through their regulations imposed on interstate trucking operators. Also, some of the larger companies—for example, the Greyhound System—definitely have developed their own standards.

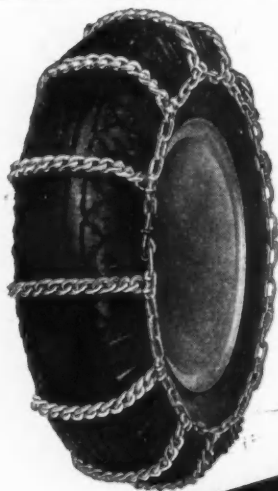
In answer to another question, Sadler stated the opinion that the "ideal type of driver applicant" is a person with an average I.Q. test, not thin and more of the muscular type, coming from a status in his home life in which truck driving is considered "a good job." He is "an ordinary nice guy, who does not gush over but responds easily, who had average school grades but wasn't at the head of his class." As to who could properly administer a company driver selection program, it was thought that he need not be an assumed "expert psychologist," but probably could acquire all needed special training "within a period of weeks."

### Mental Attitude First

B. D. DANCHIK, Conference Leader, Central Training School sponsored by International Harvester Co., was a speaker in a session devoted especially to "driver training." He spoke on the topic "Human Relations in Safety Engineering," and reviewed his analysis of the "mental attitude" of the normal American youth eligible to become a motor truck driver. He theorized that the development of safety habits among drivers is mostly a "salesmanship job" which especially requires the promotion of "safety consciousness." But such a promotion definitely must be adapted to what is "in the head" of this typical young American. He found four different chief mental attitudes and habits, summarized as "discontent," "equality," "intelligence," and "opportunity."

He thinks that "discontent" has been inherited by the average American youth, simply because his ancestors before him—back one or more generations—originally cut loose from some "old country" and came to America because of their "discontent." Here they have grown up in our assumed national atmosphere of "equality,"

(TURN TO PAGE 102, PLEASE)



**STAY on  
the road and  
KEEP moving  
with ...**



They're tough...they last...and that famous CLAW edge design really bites into hard ice and snow. Ask the biggest car and truck fleet operators why they stick to CLAW chains year after year. CLAWS are "traction insurance" and cost a whole lot less than delays and accidents.



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BOOTHS B-23-25 . . . A.S.I. SHOW . . . CHICAGO . . . DECEMBER 6-10

# For Holiday Hauling and ALL HAULING

Many, many days and "nights before Christmas" thousands of motor trucks are as busy as old St. Nicholas himself, aiding in important holiday preparations.

The tree and its trimmings, the turkey and its fixings, the brightly wrapped gifts for dad and mother, sis and brother . . . in fact all the things we eat, wear or use at Christmas time or any time . . . are all transported by truck during some stage of their travels.

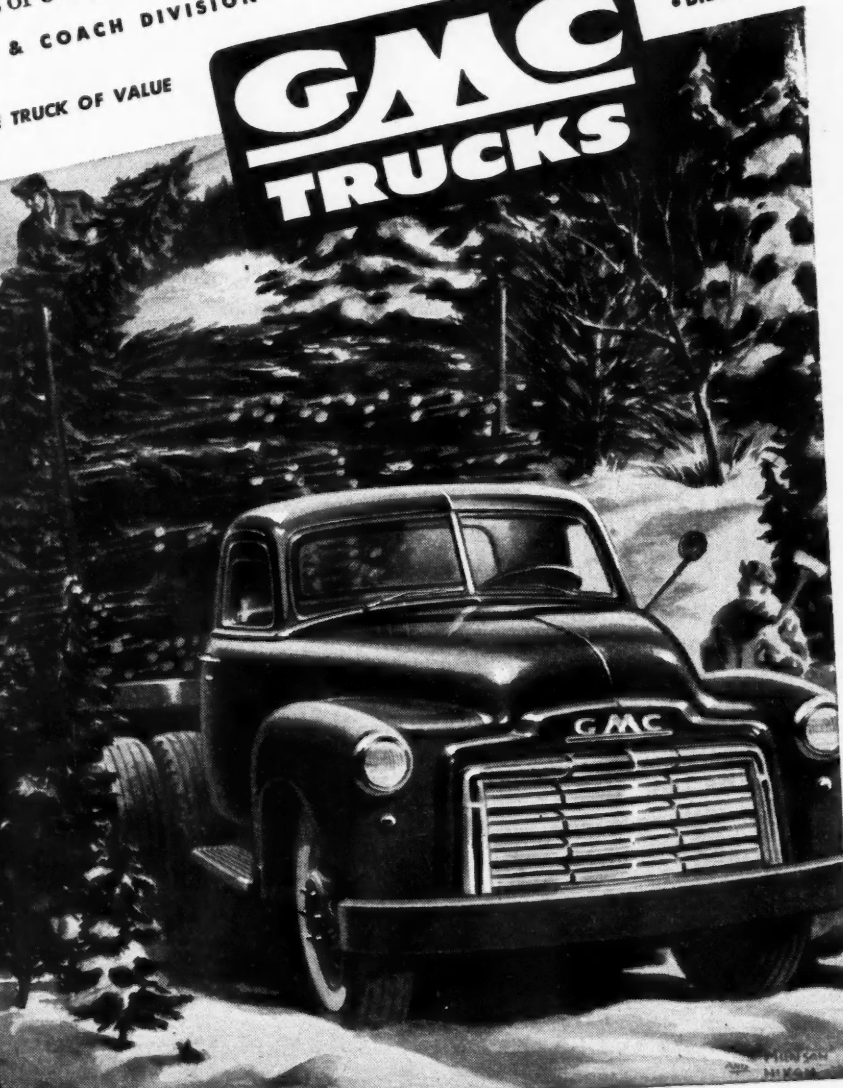
GMC trucks . . . light, medium and heavy duty, gasoline and Diesel . . . are outstanding in ability and dependability, efficiency and economy. For holidays or every day, there's a GMC ideally suited to every job.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK OF VALUE

## GMC TRUCKS

GASOLINE  
• DIESEL



## ... Safe Drivers

(CONTINUED FROM PAGE 100)

with the possibility of some day becoming a very important personage. Also, this growing-up has been in an atmosphere which is requiring a continuously increasing level of education and mechanical skills—for instance, in the safe and efficient handling of a late model highway truck, as compared with the much more simple handling skills required only 10 or 15 years ago. Furthermore, the youthful truck driver has been trained to think of America as the

land of "opportunity," and to remain satisfied with his truck-driving job, he must have the feeling that it does offer company advancement opportunities. Hence, company management, to promote driver efficiency and safety, must always keep in mind these four attitudes and expectations in the mind of the average young American truck driver.

### Emotional Causes

MILTON D. KRAMER, Assistant Director, Center for Safety Education, New York University, in his follow-up talk on "Organization and Presentation of Instruction," reviewed his analysis of effective

methods for making "educational contacts" with the mind of the average truck driver. First, he thinks that our national assembly of motor vehicle accident statistics do not mean much. That is, they in general do not record the real "causes" of accidents, but only the "results from" accidents. Usually, the real cause was the "last incident" before the accident. Why was the driver "exceeding speed limit," or "driving on wrong side of road," or "asleep at wheel"? Hence it has become the activity of the Center For Safety Education, New York University, to promote a program to learn more about the real emotional causes of accidents; and to develop driver training methods that will help to control these causes.

### Driver Training Symposium

ANOTHER of the sessions was devoted to a "symposium" inquiry on the general problem of "Reducing High Frequency Accidents." J. Grumme, Jr., Director of Safety, The Silver Fleet Motor Express, Inc., was discussion leader. Karl Schulze, Standard Oil Co. of California, reported on his company investigation of "sideswipes." His conclusion was that "side swipes can be prevented only if the drivers get in proper lanes and stay there and change only when proper." Hence, this is a driver training problem.

Karl Van Buskirk, Safety Supervisor, Merchants Motor Freight, Inc., reported on his company "intersection accidents," and stated the opinion that "the biggest reason was the driver himself."

S. D. Wirenus, Director of Safety, Central Greyhound Lines, Cleveland, reported on "rear-end collisions." He classified this type as "99 and 44/100 per cent preventable, involving human failures, and mostly the fault of the one driver who does the hitting." About half of such company accidents had been at intersections, mostly involving sudden stops. Analysis indicated two special precautions their drivers were asked to take: "Keep definitely to their side of the road," and "Take more time in getting in and out of cities." More attention to these two points recently had reduced these company accidents by 15 per cent.

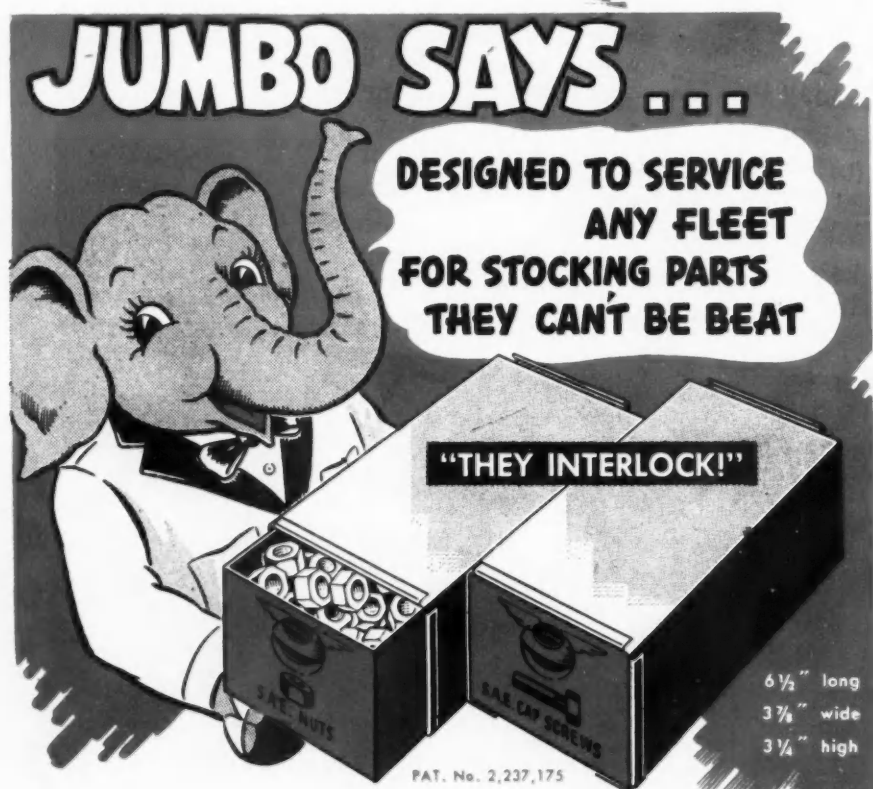
R. F. Todd, Asst. Personnel Director, Commercial Freight, Inc., reported on "backing accidents," representing 24 per cent of their company totals during a three-year period. To correct them, little "challenging" suggestions by the head dispatcher had been helpful. Also, the company elimination of "tail gate loading," placement of two rear-view mirrors, and lessened driver fatigue through more use of two-wheel trucks in cargo handling.

### Top Management Responsibility

ONE of the final sessions was a panel discussion of "Top Management is Vitrally Interested in Accident Prevention." W. R. Smith, Insurance Manager, Scott Bros., Inc., was chairman, and there were four participants.

R. A. L. Bogan, Executive Vice-Pres., The Greyhound Corp., Chicago, stated the

(TURN TO PAGE 104, PLEASE)



## DORMAN JUMBO ADD-A-BINS

Fleet maintenance men specify Dorman Products because only Dorman Products are packed in JUMBO ADD-A-BINS. Cap screws, nuts, washers, cotter pins and stove bolts are just a few of over 4000 items available in these interlocking steel containers. Cabinets of any size and shape can be built as you buy the parts required to keep your fleet rolling. See your automotive wholesaler about Dorman Products in JUMBO ADD-A-BINS.

As Jumbo Says: "THEY INTERLOCK!"



DORMAN PRODUCTS Inc.  
CINCINNATI, OHIO



# "Snap-on Tools

**eliminate wasteful  
tool-chasing time,"**

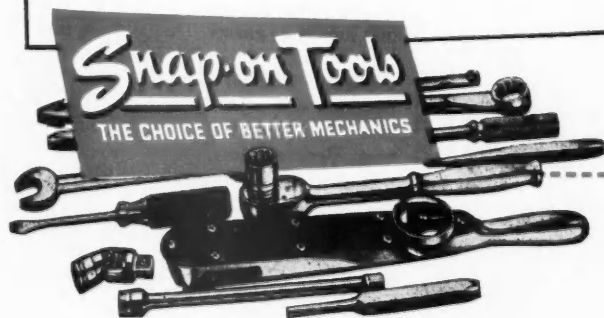
*...says Paul A. Schaup,  
Service manager of Les Vogel  
Chevrolet, San Francisco, Calif.*



Service managers from coast to coast are just about unanimous in their approval of Snap-on tools and of Snap-on's nationwide, direct-to-user tool service. Mr. Schaup says this tool service "eliminates wasteful tool-chasing time". The Snap-on man calls regularly . . . helps keep tool kits up to par. He brings the tools to the mechanics . . . eliminating the need of hours spent in "shopping around".

In addition to this modern method of distribution, add all the quality features that have established Snap-on tools as "the choice of better mechanics, everywhere", and you will see why "the Snap-on way" pays big dividends in time saved for the mechanics and money saved for management. Write for the new 1948 catalog.

**For 28 years, Snap-on's  
Direct-to-user Tool Service  
has proved to be  
"The Time-Saving Way  
to Buy Time-Saving Tools"**



## **SNAP-ON TOOLS CORPORATION**

8026-L 28TH AVENUE • KENOSHA, WISCONSIN

International Division: Kenosha, Wis., U.S.A.

## ... Safe Drivers

(CONTINUED FROM PAGE 102)

opinion that the very existence of motor transportation depends on safety. At the start of their operations they had set out to make "a safety reputation" by placing safe drivers on all buses. They now have a safety department for each unit company, all unified by a recently set up Greyhound Safety Council. To promote safety they have: 1. A selection system to get drivers physically, mentally and temperamentally adapted to their work. 2. Reasonable oper-

ating schedules, with a strict rule that there shall be no "safety risks" in efforts to make up lost time. 3. Vehicles kept in the best mechanical condition. He stated the opinion that the Pennsylvania Turnpike "today is the safest highway in the United States." For two-lane operation, he thinks the road between Chicago and Milwaukee is one of the best. The most dangerous highway is the three lane type, where drivers compete for the middle lane. In general, he thinks that American highway developments are at least 25 years behind our national developments in motor vehicle efficiency.

"Safety and also highway courtesy," he stated, "must start at the top management

level. Top management that does not have the safety spirit is apt soon to lose its job—and ought to lose its job."

E. J. Buhner, Chairman of Board, American Trucking Assns., Inc., thinks that one of the biggest accident hazards in the trucking industry is the existence of so many small company fleets, and their difficulty in getting good drivers. "I have been told," said he, "that some of the larger companies with the best safety records hire only one driver out of 24 or 25 applicants. And this seems to prove that some other companies have a lot of poor drivers. "Trucking safety," he continued, "must begin at the top-management level. It must include safety in loading—in maintenance—in dispatching—and in highway driving. Some companies seem to think that the only thing necessary is to hire a Safety Director, but that isn't enough. Our own company spends more time in driver selection than anywhere else. After we get the right type of driver, with the proper attitude toward the company and his work, there is little trouble thereafter."

He also mentioned that the organized trucking industry is giving a great deal of time to driver selection and the development of safe driving standards. This includes work being done by at least ten different ATA state groups in promoting driver selection tests. A leading example is Illinois, through the use of a roving motorized "driver testing and training unit." It is especially to assist small trucking fleets, and already has tested many thousands of drivers.

H. O. Christiansen, President, Yellow Cab Co., Long Beach, Calif., reviewed his experience in the safety training of his 160 cab drivers and the cutting of accident losses.

J. A. Reitzel, Associate Director, Bowman Dairy Company, stated the belief that in too many cases "management is not yet really much interested in safety." This opinion resulted from a personal survey, and the number of instances in which top company officials knew almost nothing about their safety departments. Chief responsibility, he thinks, was on the Safety Directors themselves, who hadn't made their management sufficiently conscious of the importance of their departments. He also believes that it is the responsibility of management to be more active in "selling" safety to their drivers, under a three-part program that will "inspire, instruct and illustrate."

The final Award Luncheon Session was sponsored by General Motors, to honor all award winners in the 17th Annual National Fleet Safety Contest conducted by the National Safety Council. There were about 500 luncheon guests. The program included introductions by J. P. Hightower, General Chairman elect of the Commercial Vehicle Section, and a talk on "New Motor Horizons" by W. J. Davidson, Executive Engineer, General Motors Corporation.

More than 170 contest trophies and certificates were formally presented in behalf of winners among the 1,458 commercial vehicle fleets which finished the last annual contest, representing 128,060 vehicles which

(TURN TO PAGE 106, PLEASE)



**TODAY, THERE** is an easy and sure way to tell whether you are getting your money's worth in an Air Compressor. Simply look for the PAEA label illustrated at right. Any unit bearing this label is warranted by the manufacturer to equal or exceed the minimum commercial standards filed with the National Bureau of Standards in Washington, D. C.

You know it will have all important features, such as an A.S.M.E. tank and is built for safe and efficient operation. You know the actual usable air produced in relation to electrical input will equal or exceed the established standards. Whenever you are in need of an Air Compressor, remember the PAEA label. Let it be your buying signal.

A copy of Commercial Standard CS126-45 is available from the U. S. Government Printing Office



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Quincy Compressor Company  
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Wayne Pump Company, The  
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# Only HASTINGS *Aero-type* SPARK PLUGS ARE PERFORMANCE RATED



... to SIMPLIFY SELECTION and INVENTORY

The new Hastings Spark Plug removes all the ordinary complications of stocking and fitting. You can tell—at a glance—which plug to use, and the performance you can expect from that plug. And with the Hastings Performance Rating system, you stock a maximum of fifteen numbers to fit all popular cars, trucks, and tractors.

But Performance Rating is only one part of the Hastings story. Every Hastings Plug is X-ray inspected, to assure proper construction and uniformity. And every Hastings Plug is built to finest aircraft standards

—with the same insulator perfected for superports and fighter planes.

Fleet operators and car owners have found this plug is far less subject to fouling, pre-ignition and other common spark plug ailments. Dealers report phenomenal sales wherever Hastings Aero-type has been introduced.

For better performance, trouble-free service, simplified selection and inventory—turn to Hastings Aero-type. You'll find its longer life more than justifies its higher cost of \$1.25.

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HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN

# HASTINGS

*Aero-type*

SPARK PLUGS

Featuring *H.T.* Aluminum Oxide Insulator

Every Plug is X-Ray Tested

If Hastings Spark Plugs are not yet available in your territory, write direct for illustrated catalog. Distribution is being developed as rapidly as possible—your jobber will be able to supply you soon.





## FWD Redesigns YU

At top of page, three views of the new FWD model YU, redesigned for greater serviceability, adaptability and driver comfort. Center photo shows how side panels may be removed to provide engine accessibility from diamond grid platform on fenders and skirting. Picture at right shows how fenders and bumper may be removed for snow plow attachments.

## ... Safe Drivers

(CONTINUED FROM PAGE 104)

travelled 2,021,646,000 miles and reported 73,137 accidents. The combined rates for all fleets in the contest was 3.62. Those companies which reported in both this contest and in the previous annual contest had an average rate in this contest 2% lower than in the previous contest. The best improvement of any division was made by the Intercity-Truck-Common Carrier division, with a rate 37% lower than in the previous contest.


## Officers and Committee Chairmen

IN the annual election for the Commercial Vehicle Section, J. P. Hightower, Pennsylvania Greyhound Lines, Cleveland, was elected General Chairman. C. D. Calkins, Pacific Motor Trucking Co., San Francisco, was elected vice chairman; and R. P. Austin, Virginia Surety Co., Toledo, Ohio, was elected secretary.

New standing committee chairmen are: Program, H. J. Ericsson, Refiners Transport & Terminal Corp., Detroit; Contest, J. Grumme, Jr., The Silver Fleet Motor Express, Inc., Louisville; Driver Award, William Merritt, Trucking, Inc., Detroit; Membership, D. W. Goodwillie, Willett Motor Coach Co., Chicago; Central Region, S. E. Pratz, Jr., Heldt Brothers, Alice, Tex.; Eastern Region, N. E. Aikin, Commercial Motor Freight, Inc., Columbus, Ohio; Southern Region, H. M. Clayton, Memphis Light, Gas & Water Div., Memphis; Western Region, M. R. Jensen, Consolidated Freightways, Inc., Portland, Ore.

END

(Please resume your reading on P. 70)

# LEND AN EAR TO Pull AND Pressure

SINGING tires. Humming gears. A purring power plant. Sweet music, these—and profitable. Don't let *pull and pressure* strike up any sour notes in your rhapsody of "Get Up and Go."

Pull—that's tractor tug. And pressure is trailer weight. Together, they pose a problem which ASF engineers have solved, *completely*. With their 40 years of railroad coupler experience, these specialists know that the *safety* of equipment, and of precious rolling loads, depends on whether a wheel can "take it."

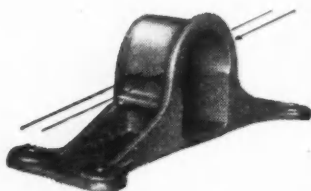
## Safety on Every Run

That's why Safety 5th Wheels are designed to carry trailer weight on *big-bearing-area* bracket trunnions—not on pins; why tractor pull and braking are transmitted through cast-steel members in compression—not through pins.

Get *all* the facts today! Automotive Division, American Steel Foundries, 400 N. Michigan Avenue, Chicago 11, Illinois.



The new Series 400-C. Dealers and distributors wherever you go.



Sockets on the plate fit well down over the trunnions so that tractor pull is transmitted in a straight line. Plate won't "lift" under power or braking.

# A.S.F. Safety 5th WHEEL

# WORLD BESTOS Brake Blocks

## SOLVED OUR Brake Lining Problems



### "Good Brakes — No Squealing — No Scoring of Drums"

McFarland & Stample Trucking Company of Hamden, Conn. operates 124 units — largely tractor and trailer — between Hartford and New York City and intermediate points. Combining the problems of city driving and higher-speed over-the-road service on crowded highways, this operation puts brake linings to a severe test. During the past year, McFarland & Stample has equipped over 75% of its units with World Bestos Brake Blocks — and is planning on extending their use.

"Brake lining problems?" asks Mr. William Carl, maintenance manager of McFarland & Stample. "Ours were solved when we started using World Bestos Blocks. Now we get consistently good braking under all conditions. And there's no squealing, no scoring of drums on our trucks that are using these blocks. We're so well satisfied with World Bestos Brake Blocks we plan to put them on even more of our units when ready for relining."

Truckers everywhere are finding such performance typical of World Bestos Blocks. Made of an extremely tough fibrous mix which withstands high temperatures usually disastrous to ordinary formulations, these linings wear slowly in even the most severe service while providing a stable, resilient friction under all operating heats and pressures. For proof, reline with a set of World Bestos Brake Blocks and compare them to those you now use.



BRAKE LININGS BRAKE BLOCKS

# WORLD BESTOS

CORP.

NEW CASTLE • INDIANA

## Quiz Answers

(See page 70)

1. No. A survey of 500 Fleet Owners revealed that 59% used lifts of 5-ton capacity while only 6.5% had lifts of the 12-ton capacity.

2. She picked up the phone and called her oil supplier because recent surveys indicated that changing to a heavy-duty oil and more frequent changes proved beneficial to 69.86% of owners checked while only 17.7% reported benefits from item (a).

3. Miss Malone was super-intelligent on this one. She listed them all and the reasons are obvious.

4. The East-West Lines or any fleet owner would have no call for sizes 8:50/18, 9:50/20 or 11:50/16. Hope you didn't miss out on the 4:50/12. Miss Malone also operated a Crosley.

5. Tom is correct. Surveys completed show the following octane ratings.

|         | Regular | Premium |
|---------|---------|---------|
| 1944-45 | 70.2    | 75.1    |
| 1946-47 | 75.0    | 78.5    |
| 1947-48 | 75.3    | 79.4    |

6. Use a 2-man crew because, while there is an apparent 21.4% differential in favor of the 1-man crew, the 2-man crew can perform 25 per cent more operations or make 25 per cent more inspections.

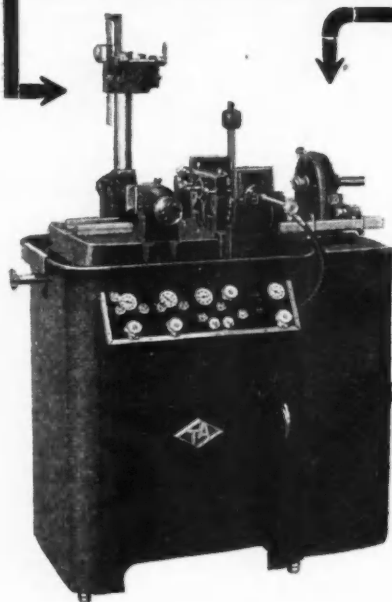
7. "b" is correct. The "bridge formula" method determines the gross vehicle weight permissible on bridges and in turn determines the gross vehicle weight permissible on the highways since a stretch of highway capable of carrying 80,000 lb. vehicles is interrupted by a span that can stand 40,000 lbs. it is only accessible to vehicles of 40,000 lbs. or less.

8. The man hired should be thoroughly familiar with electrical systems because an analysis of total unit delays showed 34 per cent occasioned by difficulties with electrical systems, 12 per cent by engine troubles and 10 per cent by fuel system failures.

9. "c" is correct. Use of decals would put the vehicle back in service on the same day of delivery whereas a hand-lettered job might take two to three days before completed for service.

10. Sulfur sticks are used for locating ammonia leaks on refrigerated units. The sulfur stick is lighted and passed under and near all connections and joints. The color of the flame will change if the sulfur stick passes through the escaping gas.

## A PIN FITTING MACHINE that will REDUCE your OVERHEAD



It's fast—it's accurate. For fitting pins in connecting rods and pistons of all internal combustion engines. Bores the wrist pin bushings and pin holes in piston as well as the bearing in the large end of the rod.

## TOBIN-ARP MODEL P-M100 Piston Pin Fitting Machine

Eliminates any guess work and does a more accurate job faster than ever before. Produces a perfectly round hole, glass smooth.

Operator knows definitely the clearance or press fit. A set of six old pistons and six old rods can be fitted with six new over-sized pins in just a few minutes.

### Better Get Complete Details

Write for complete details on this machine that has no gears, racks, screws, levers or handles. Everything is operated by oil, air, electricity—making it a very fast machine.

**TOBIN-ARP MANUFACTURING CO.**  
2845 Harriet Ave., So. Minneapolis, Minn.

## Answers to Time Out for Play

(See page 72)

### Stop Thief

The answer is yes.

If when the mechanic is at any corner of one of the four-sided fields the thief can move to the diagonally opposite corner, the mechanic will not catch him. If, however, the situation is reversed, the thief will be caught. The only way for the mechanic to permanently get this move on the thief is for him to immediately go once around the triangle in the center even though he appears to be making a losing detour and then continue his pursuit. Try it, like checkers.

### Check Your Oil

- |                    |                  |
|--------------------|------------------|
| 1. rec OIL         | 4. turm OIL      |
| 2. b O I L e r     | 5. b r O I L e r |
| 3. O I L s t o n e | 6. t i n f O I L |

### Match Them Up

|             |             |             |
|-------------|-------------|-------------|
| Bum/per     | Head/light  | Mile/age    |
| Crank/shaft | High/way    | Over/haul   |
| Fore/man    | Horse/power | Wheel/base  |
| Grease/ball | Ho/using    | Wind/shield |

### Shop Terms

1. MAINE-TEN-ANTS (maintenance)
2. HIDE-DRAW-LICK (hydraulic)
3. NEW-MAT-TICK (pneumatic)
4. CAR-BUR-RATE-ORE (carburetor)
5. EKE-WHIP-MEANT (equipment)
6. PURR-FORM-AUNTS (performance)



## Scattered Fleet

(CONTINUED FROM PAGE 63)

job, not stocked. Rent, light, heat, water, miscellaneous small supplies, etc., should be prorated to the vehicles housed and serviced at the shop and charged as rent. Any non-productive time should be prorated to each vehicle receiving service through the hourly rate charged for productive time, etc. Gas, oil, grease, etc., can be dispensed at the shop by using log form, previously mentioned (Fig. 2), except that the stock log is maintained by the Shop Foreman and forwarded to headquarters at specified intervals for inspection and posting of charges.

We now have all vehicle operating expense clearing through headquarters, from the vehicle operator's reports, from purchases in the field billed direct to headquarters, from headquarters purchases and from the shop.

### The Expense Ledger

FIG. 4, "Vehicle Expense Ledger," is used for accumulating all of these charges. A sheet is set up in the ledger for each vehicle and charges are posted currently. It will be noted that the "Vehicle Expense Ledger" provides a ready picture of age, usage and the various items of operating cost for each vehicle.

An individual file is also maintained for each vehicle, in which is filed all pertinent information, such as correspondence and copies of all invoices and expense reports to support the charges shown on the ledger. Since the ledger shows only the amounts of expenditures, the individual files are particularly useful for making a detailed analysis of a vehicle's operation. Such details are particularly valuable when the operating costs of a vehicle are abnormal or when it must be decided to either do a major repair job or replace the vehicle.

Now we have a complete record of each vehicle's operation in the ledger. However, to make the greatest use of these data, the ledger must be summarized periodically during each year, either quarterly or semi-annually, as conditions dictate.

(TURN TO NEXT PAGE, PLEASE)



**A Hockey Goalie Has  
Special Equipment...**

## YOUR CARS AND TRUCKS NEED PURITAN Super 60 BRAKE FLUID

The goalie on a hockey team has special equipment because his job is a specialized one—tougher than that of the rest of the team. In the same way your commercial cars and trucks need a special brake fluid to withstand the exceptionally severe service they undergo.

Puritan Super 60 Hydraulic Brake Fluid was developed just for this heavy duty service. It is especially compounded from organic materials to have all the features and characteristics needed for commercial car and truck operations.

**BOILING POINT 370°F:** No danger of brake failure due to vaporization.

**POUR POINT 60°F BELOW ZERO:** Remains free flowing and mobile even in Arctic weather.


**NON-GUMMING AND NON-OXIDIZING:** Has a special base that does not gum or oxidize under any operating conditions.

**MOISTURE ABSORPTION:** Capable of absorbing all moisture of condensation—thus protecting wheel cylinders and metal parts against corrosion.

**INERT TO RUBBER:** Does not cause rubber cups to swell or deteriorate.

**MISCIBLE:** Mixes completely with all other brake fluids. Safe to add to any hydraulic brake system.

For longer periods between brake fluid servicing, for assurance of trouble-free operation, be sure to use Puritan Super 60 Hydraulic Brake Fluid. You can start getting the benefits now by adding it to your line whenever fluid level is low because it mixes with all brake fluids. To get a clean start, it's better to flush out old, gummy brake fluid with Puritan Hydraulic Brake Flushing Fluid and refill with long-lasting Puritan Super 60 Brake Fluid. You can get a supply of both from your NAPA jobber today.



**1823-1948**

125 YEARS OF CHEMISTRY FOR TRANSPORTATION

**PURITAN COMPANY, INC.**

**ROCHESTER 6, NEW YORK**

HYDRAULIC BRAKE FLUID AND FLUSHING FLUID • GASKA-SEAL NO. 1, 2 AND 3  
SHOCK AND KNEE-ACTION OIL

## Scattered Fleet

(CONTINUED FROM PAGE 111)

### Performance Report—No. 1 Aid

FIG. 5, "Vehicle Performance Report," is designed to show at a glance the operating cost and usage of each vehicle. It is distributed to each vehicle operator and supervisor, so that each employee who has any control over usage and expense has available all of the data on past performance. The data required for the

completion of this form are readily available from the summarization of the ledger sheets. It is advisable to issue the performance reports grouped by areas so that comparisons may be made by areas. The reports for each area are arranged so that the various classes of vehicles are grouped together for easy comparison. In addition to this, the vehicles are listed in the order of their cumulative operating costs per mile. The vehicle with the minimum operating cost should be listed first, with the others follow-

ing in the order of increasing costs. The reason for this arrangement is to recognize the drivers who operate their vehicles most economically and to create an incentive for everyone to reduce his cost of operation to a minimum. It introduces a spirit of competition between the operators of each class of vehicle which tends to provide a self-supervising method of control. The "Vehicle Performance Report" is perhaps the greatest help to the motor vehicle supervisor in a scattered fleet because excess traveling costs and time make it impracticable to maintain close personal contacts with the operators and supervisors in the field.

It is, of course, necessary in recap of this kind, where vehicles are arranged in order of ascending cumulative cost, to take into consideration the age of the vehicle, its total mileage, the number of miles it has run during the month, its record of repairs, etc. A driver to which a very old vehicle is assigned may quite properly be lower on the list than one with a relatively new vehicle. Yet surprisingly this does not always follow. Another glance at Fig. 5 will show that some vehicles with heavy total mileage are far up on the list. Note again that we use the cumulative cost rather than cost for the period as our basis of ranking the vehicles since this to a large extent compensates for any undue and heavy repair expenditure occurring during any given period.

Another interesting feature of this report is the way different makes of vehicle "stack up." Although, for obvious reasons, we have eliminated the makes from the second column of this particular sample, five different makes are represented and their cost performance is interspersed with surprisingly little preference for any one make from top to bottom.

Comparisons may also be made from the "Vehicle Performance Report" of the operations in the various areas, if so desired. By so doing, the average operating cost of each class of vehicle is obtained for the entire fleet and upward or downward trends determined by comparison with previous periods.

### Supervisor Must Support Driver

WE have found that the average driver takes pride in keeping his car or truck in good condition and will operate it efficiently.

(TURN TO PAGE 114, PLEASE).



We admit Santa's been around a lot longer than we have...but our 80 years specialized experience in the field of industrial decals gives us know-how as long as his beard! Santa knows his business--we do, too!

Let us put that experience to work for you. We've been serving thousands of famous-name customers with their quality of custom-designed decals for 80 years.

Thousands of fleet owners will tell you that Palm Brothers truck decals keep their looks longer, keep maintenance costs lower. For a more profitable New Year, look up our local representative in your classified 'phone directory...he'll be right over with the proof of our products. Or write to us direct at Cincinnati. Address your request to Dept. 731.

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**THE PALM BROTHERS DECALCOMANIA COMPANY**

3736 REGENT AVE., CINCINNATI 12, OHIO

OFFICES IN ALL PRINCIPAL CITIES • SEE YOUR 'PHONE BOOK



# MANLEY

## 8-ton Wrecking Crane WC-8

Booms operated individually or as a unit. Automatic drag brake when reeling—special drag brake when hauling. Controls are at side or in the rear. Machine cut gears—worm drive—ball bearings on gear shafts—multiple disc clutches. Out-riggers available as an accessory. Many other features. Here is the first really new and improved Wrecking Crane offered in the past ten years—completely redesigned in accordance with modern engineering practices.

*Manley jobbers offer a quality line of Wrecking Cranes and accessories, Floor Cranes, Hydraulic Presses, Jacks, Trestles—other automotive service equipment*

**ACCO**

York, Pa. • Chicago • New York • Portland • San Francisco • Bridgeport, Conn.

**MANLEY DIVISION  
AMERICAN CHAIN & CABLE**

*Manley Equipment Saves Man Hours*

**MANLEY**  
*Automotive Service*  
**EQUIPMENT**





## Scattered Fleet

(CONTINUED FROM PAGE 112)

ciently if management lets it be known that this is a part of his job. Management must, of course, give the motor vehicle supervisor authority to handle motor vehicle problems, and support his handling of such problems. The motor vehicle supervisor must, in turn, give immediate supervisors and the drivers all the help at his disposal to obtain the desired results. He should set up standard practices for obtaining gas, oil, tires, anti-freeze, batteries, spark plugs

and accessories, as well as standard practices for maintaining the various units, including repairs and paint jobs. All such practices should be set up with the idea in mind of keeping the job as simple as possible for the vehicle operator.

The purchase of supplies such as tires, spark plugs, anti-freeze, chains, heaters and other accessories, can usually be set up on a national account arrangement or through centralized purchasing, depending upon which system can offer the best price, service and simplified handling. Speed of delivery is of utmost importance with such items as tires, spark plugs and chains. Slow handling of these items usually results in

operators ordering in advance of their needs or purchasing locally, claiming that local purchases are necessary because the vehicle is out of service.

### Efficiency from Outside Shop

**T**HEREFORE, it is the problem of the supervisor of a scattered fleet to obtain the best efficiency possible with hand tools and available personnel. Most of the maintenance must necessarily be done through commercial repair shops. As a general rule, his vehicle operators are not hired as drivers. They are hired because they are good salesmen, linemen, equipment installers, etc. The cars and trucks are used only because it is the most practicable method of getting the men and tools to the job. In many instances these men are scattered over a large area and report to a division, district or area head. These districts in turn report to a general headquarters.

This is where the motor vehicle man enters the picture. Keep in mind, now, that the drivers are not motor-vehicle-minded and the intermediate headquarters to which they report do not have trained motor vehicle personnel. The problem, therefore, resolves itself to the motor vehicle supervisor with a limited force at general headquarters who must keep the motor equipment operating, and at reasonable costs, through the lines of organization.

The purchase of gas, oil and batteries can usually be handled most advantageously on a national account basis for deliveries through local retail outlets.

Standard practices for proper maintenance of tires, batteries, spark plugs, changing of oil and oil filter cartridges, greasing, cleaning of air filters, etc., can generally be issued as permanent instructions to all operators.

The handling of paint jobs and major body or mechanical repairs presents the greatest problem in the scattered fleet. We have found that the best method is to get at least two bids, preferably from reliable dealers handling the make of vehicle to be repaired, and forward them to general headquarters for authorization before proceeding with the work. Previous records of repair work in the particular area will indicate whether or not the bid is a reasonable figure.

It is perhaps needless to say that the effectiveness of the methods I have described depends upon the motor vehicle supervisor's ability to educate employees and supervisors in the value and full use of the information placed at their disposal. We, too, must supplement such a plan with field inspections of vehicles, educate operators in proper driving practices, safety, fire prevention, maintenance procedures, etc.

These methods apply to a utility fleet and it must be understood that practices, procedures and forms must be tailored to fit the particular organization and fleet to which they are to be applied.

**END**

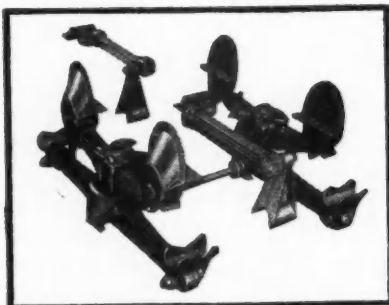
(Please resume your reading on P. 64)



**SAME CARGO  
SAME HAUL  
SAME ROAD  
SAME FLEET OWNER**

### BUT THERE'S A DIFFERENCE IN TANDEM

FLEET OWNERS PREFER a Hendrickson-equipped rig for minimum lost time. They know that the experience and leadership of Hendrickson engineers in tandem design are second to none.



**HENDRICKSON MOTOR TRUCK COMPANY**  
8001 W. 47th Street, Lyons (Chicago Suburb), Illinois

*Follow the Leader!*



**MORE MILES • MORE SATISFACTION**

with Belden

**SPARK PLUG WIRES**

Belden 7777

Belden 7799

Belden 7789

**Belden**  
*Automotive* **WIRE**

**Battery Cables • Spark Plug Wires  
Lighting Wires  
Cordlites, Extension Cords, and Tools**

## Air Compressors

(CONTINUED FROM PAGE 45)

deliver. This can be obtained from the manufacturer.

The following table will give approximate requirements for common types of air-operated equipment.

Displacement of the compressor can be computed by the following formula:

Bore  $\times$  Bore  $\times$  .7854  $\times$  Stroke  $\times$  RPM  $\times$  No. of Cylinders

1728

= Displacement in CFM

This formula applies to both single and two-stage compressors, but the small high pressure cylinder of the two-stage type should not be used in the computations.

The fleetman should remember, however, that piston displacement is not a measure of the output of usable air at the hose. The volume of air

actually delivered is always less than the piston displacement.

Since most two-stage compressors deliver only about 70 per cent of the piston displacement, a unit listed at say 10 cu ft of air per min at 175 lb pressure will actually put out 7 cu ft at this pressure. Capacity depends upon the volumetric efficiency rating of the unit from the standpoint of cooling efficiency, valve operation, construction, etc. To determine how much air will be delivered at the hose the theoretical or rated displacement is multiplied by the volumetric efficiency, a figure which can be obtained from the manufacturer upon request.

### HOW TO SELECT THE AIR COMPRESSOR

Cubic Feet Per Minute Required

| Equipment Air Pressure Range | Type of Device                        | Average Free Air Required C. F. M. |
|------------------------------|---------------------------------------|------------------------------------|
| 70-100                       | *Air Filter Cleaner                   | 3.0                                |
| 70-100                       | *Body Polisher                        | 2.0                                |
| 70-100                       | *Body Sander                          | 5.0                                |
| 70-100                       | *Brake Tester                         | 3.5                                |
| 70-100                       | *Carbon Remover                       | 3.0                                |
| 120-150                      | *Car Rocker                           | 8.75                               |
| 70-100                       | *Car Washer                           | 8.5                                |
| 70-100                       | Dusting Gun (Blow Gun)                | 2.0                                |
| 120-150                      | Grease Gun (High pressure)            | 3.0                                |
| <b>Hammers</b>               |                                       |                                    |
| 70-100                       | *Air Hammer                           | 15.5                               |
| 70-100                       | *Fender Hammer                        | 8.75                               |
| <b>Lifts</b>                 |                                       |                                    |
| 70-100                       | Hoist (1-ton)                         | 1.0                                |
| 145-175                      | Hydraulic Lift                        | **5.25                             |
| 120-150                      | Pneumatic Garage Door                 | 2.0                                |
| 70-100                       | Radiator Tester                       | 1.0                                |
| 70-100                       | Spark Plug Cleaner                    | 5.0                                |
| 70-100                       | Spark Plug Tester                     | .5                                 |
| <b>Spray Guns</b>            |                                       |                                    |
| 70-100                       | *Engine Cleaner                       | 5.0                                |
| 70-100                       | *Paint Spray Gun (Production Type)    | 8.5                                |
| 70-100                       | *Paint Spray Gun (Touch Up Type)      | 2.25                               |
| 70-100                       | *Paint Spray Gun (Undercoating Type)  | 15.00                              |
| 70-100                       | Spring Oiler                          | 3.75                               |
| 70-100                       | Transmission and Differential Flusher | 3.0                                |
| <b>Tire Tools</b>            |                                       |                                    |
| 120-150                      | Rim Stripper                          | 6.0                                |
| 120-150                      | Tire Changer                          | 1.0                                |
| 120-150                      | Tire Inflation Line                   | 1.5                                |
| 120-150                      | Tire Spreader                         | 1.0                                |
| 120-150                      | *Vacuum Cleaner                       | 6.5                                |

\* These devices are to be considered as continuously operating devices when operating normally.

\*\* This is for 8000 lb capacity. Add .55 c.f.m. for each additional 1000 lb capacity.

All other devices listed are to be considered as intermittently operated devices when operating normally.

When the devices consist of a large number of the continuously operating type, and if only a few are to be used at one time, the compressor should have a capacity at least equal to the total consumption of all those tools used simultaneously, in addition to the consumption of all the intermittently operated tools, if any.

### Types Available

THERE are two general types of compressors in use, the single and the two-stage units, and these in turn can be divided into the following classifications:

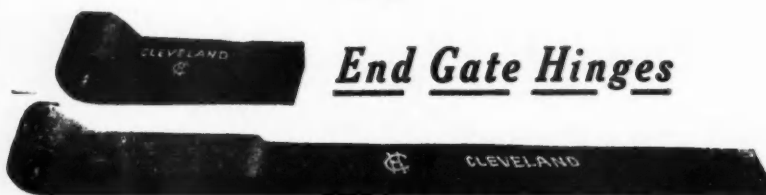
Electric motor or gas-engine-driven.

(TURN TO PAGE 118, PLEASE)

# "Cleveland" HINGES

In the smooth functioning of large auto bodies (trucks, busses, etc.) owners and drivers know well the importance of "Cleveland" Irons . . . how efficiently they operate, obviate wear, attention and replacement. All made possible by the designing, quality of materials and ENDURANCE we build into them.

All Hinges Are Made of Open Hearth Steel.



## End Gate Hinges

Long Hinges vary from 12" to 30" in length.

In sizes from 1"x1 1/4" to 2 1/4"x1 1/2"

SHORT HINGES TO MATCH

A POST CARD WILL BRING  
CATALOG 22B

The Cleveland Hardware & Forging Co.

Established 1881

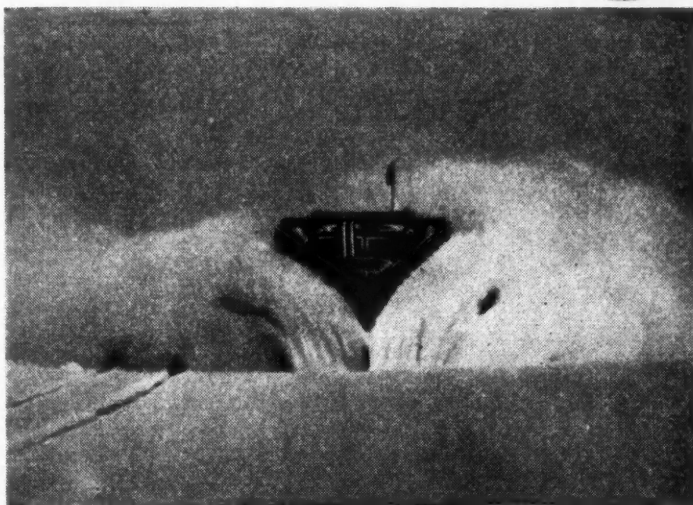
3264 East 79th St.

Cleveland 4, Ohio



# How to s-t-r-e-t-c-h highway budgets!—

One of the biggest headaches in highway budgets, is the unpredictable item of snow removal costs. One way to come out ahead is to get a break in the weather, but the surest way, year in and year out, is to be equipped with the fastest, most powerful, high-capacity snow removal equipment . . . Walter Snow Fighters.



## Your investment in **WALTER SNOW FIGHTERS** pays greater dividends

### ● FASTER, LOW-COST CLEARANCE

The tremendous power and unfailing traction of Walter 4-Point Positive Drive, clears at higher speeds, removes greater volume on each run. You clear more miles per hour, at lower cost. You need fewer units to do the job. You are equipped to handle any snow conditions, from average falls to raging blizzards—from hardpacked ice and snow, to deepest drifts.

### ● FEWER TIE-UPS

Your community losses due to blocked roads are reduced to a minimum with Walter Snow Fighters because your roads are opened fast and kept open throughout the storm.

### ● ALL-YEAR USEFULNESS

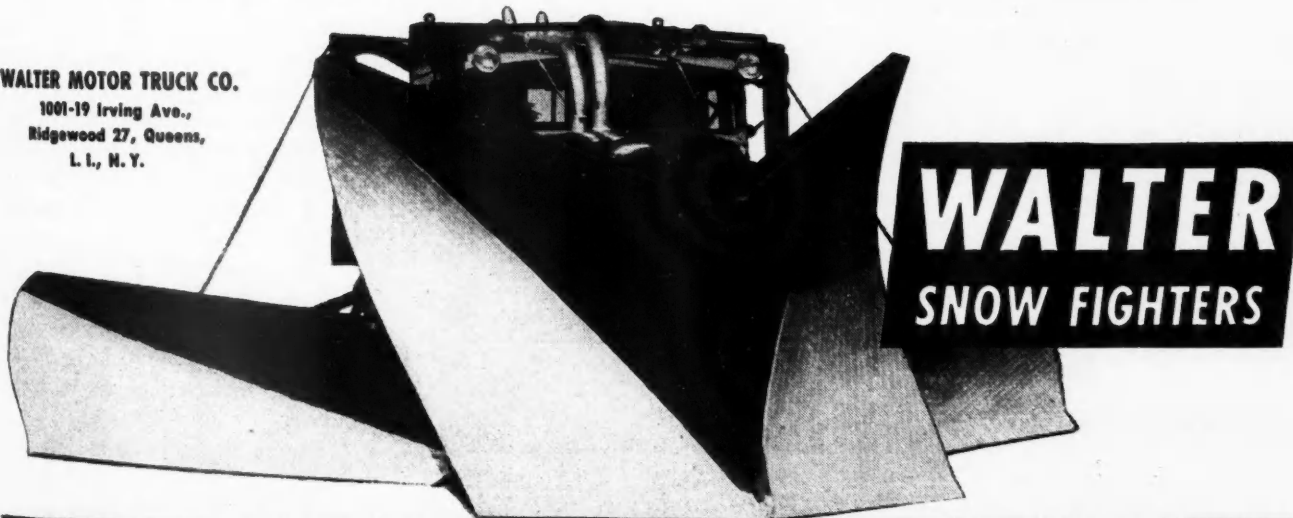
With the plows removed, Walter Snow Fighters give you outstanding heavy-duty trucks for service on and off the highway. They keep busy on road scraping and maintenance, construction jobs, hauling, emergency work, etc.

### ● YEARS OF SERVICE

Many Walter Snow Fighters are still operating at top efficiency after 10, 15 and 20 years of constant service. You can expect the same from today's advanced Walter Snow Fighters.

**See your Walter distributor for full details—or write us for literature.**

**WALTER MOTOR TRUCK CO.**  
1001-19 Irving Ave.,  
Ridgewood 27, Queens,  
L. I., N. Y.



## Air Compressors

(CONTINUED FROM PAGE 116)

Portable or stationary.

Unloader or pressure switch controlled.

Those with horizontal or vertical tanks.

Air or water-cooled units.

A single-stage compressor discharges air directly from the compressing cylinder into the air tank.

It may have one, two or more cylinders, but each cylinder pumps independently of the other, and air is compressed in each cylinder from zero to the final pressure in one stroke of the piston. The displacement is the added displacement of all cylinders. The maximum practical compression with this unit ranges from 100 to 150 lb. Most single stage compressors are only about 50 to 60 per cent efficient at normal operating pressures, due to the construction. Thus, a unit of the

one-stage type, rated at 7 cu ft air per min will produce approximately 3.5 to 4.2 cu ft per min—and, of course, much less than this when wear impairs efficiency.

The two-stage compressor is recommended in most cases, however, because of lower temperatures, greater efficiency, higher pressures available and longer life obtainable. The two-stage unit employs two compressing cylinders. Air is drawn into the first or low pressure cylinder and there compressed to a certain pressure, passed through an inter-cooler into the second or high pressure cylinder, where the compression is continued to the desired point. With this type of construction a much greater volume of air can be stored in the tank; there is less tendency to heat, a factor reducing the fire hazard; and the unit is up to 75 per cent efficient.

Where pressures of 150 lb or more are required, a two-stage compressor should be used. For pressures over 100 lb it will save from 10 to 30 per cent in power costs, according to manufacturers. At 150 lb pressure a two-stage unit will deliver approximately 30 to 35 per cent more free air than a single-stage machine of like displacement capacity.

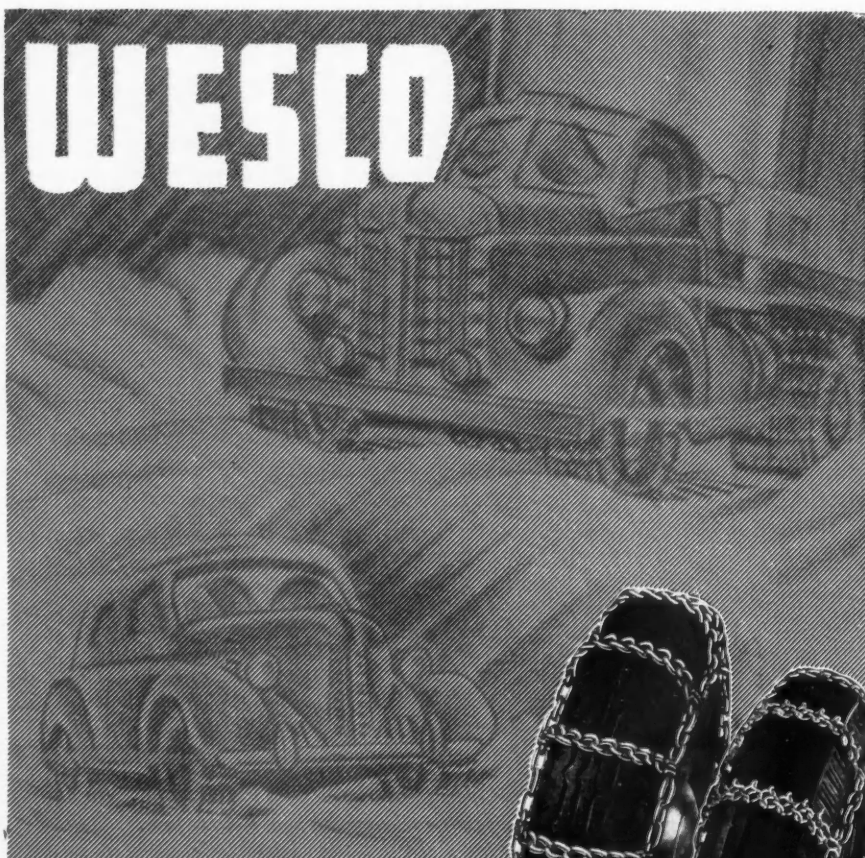
Most manufacturers agree that the two-stage type will prove considerably cheaper over a period of time even though initial cost is somewhat greater. With the two-stage unit it is possible to store 33 1/3 per cent more air in the tank as the following table will show:

| Tank Size | Capacity<br>Cu Ft | Cu Ft<br>at<br>125 lb | Cu Ft<br>at<br>150 lb | Cu Ft<br>at<br>175 lb |
|-----------|-------------------|-----------------------|-----------------------|-----------------------|
|           |                   | 125 lb                | 150 lb                | 175 lb                |
| 16 x 40   | 4.87              | 42.30                 | 51.77                 | 58.22                 |
| 20 x 48   | 9.34              | 79.47                 | 95.37                 | 111.2                 |
| 20 x 60   | 10.88             | 92.51                 | 111.0                 | 128.9                 |

You will need a two-stage compressor if your shop falls into the following categories:

1. Maintenance of over 35 vehicles.
2. If you have over four tire service lines operating simultaneously.
3. If you use an air-operated vehicle lift.
4. If you use air-operated gas pumps.
5. For production spray painting.
6. Where air-operated tools are used, i.e., hammers, riveters, valve grinders.
7. Where high pressure lubrication is done.

(TURN TO PAGE 120, PLEASE)



### WESCO'S will get you thru, safely and on time

When the going is rough—deep in snow or slick with ice, rely on WESCO TIRE CHAINS to chew out a path to your destination.

They have the stamina, weight, strength and wearing quality—the "carry thru" needed for the heavy loads, tough grinds, and tight schedules.

Write for the name of your local  
WESCO Distributor.

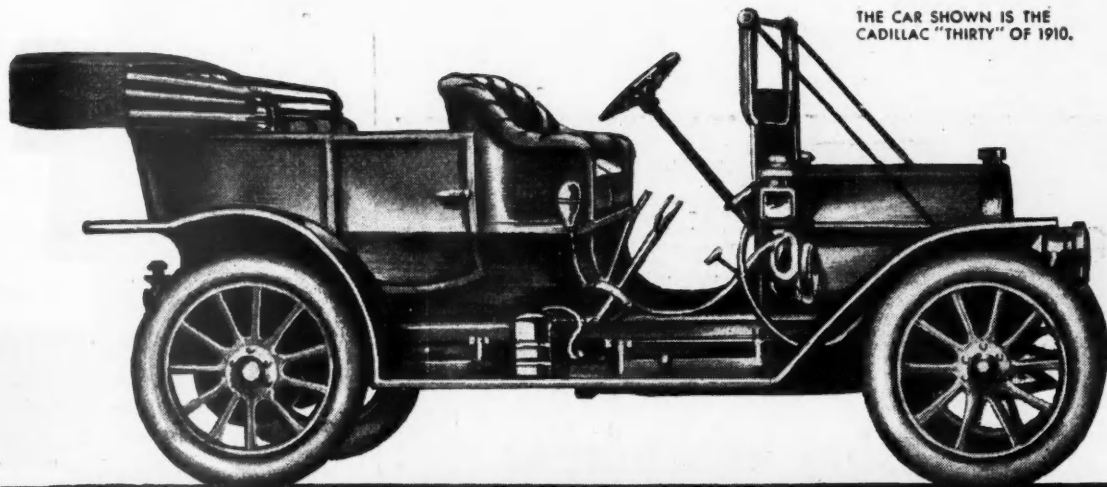
#### WESTERN CHAIN COMPANY

1807 BELMONT AVE. CHICAGO 13, ILLINOIS

can you recall this

## OLD TIMER?

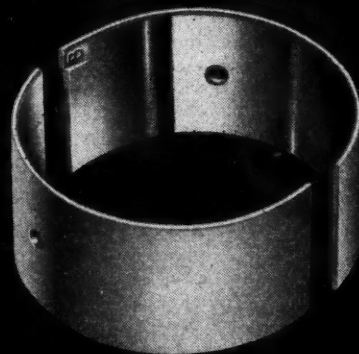
THE CAR SHOWN IS THE  
CADILLAC "THIRTY" OF 1910.



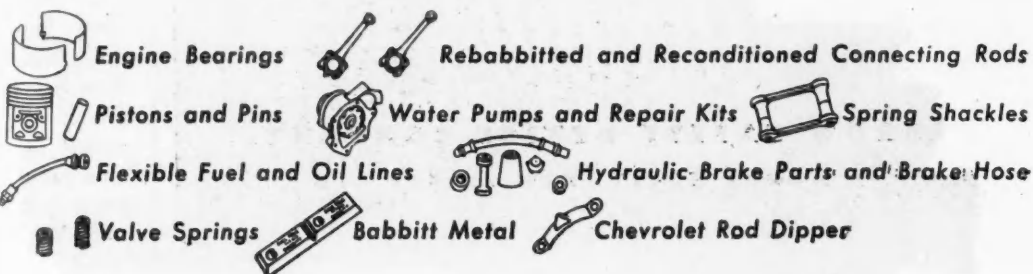
## CLAWSON & BALS

AN OLD TIMER IN AUTOMOTIVE PARTS BRINGS  
YOU COMPLETE ENGINE BEARING SERVICE

Some 2200 different makes of cars have been manufactured in this country, but only a few still survive, including the one whose early model is shown. In automotive parts, too, few have had the long experience of Clawson & Bals, suppliers of genuine "Ring-True" engine bearings and other outstandingly fine products for thirty years. Check your needs now — see the listing below of the complete "Ring-True" line, and order from your C & B Jobber. Clawson & Bals, Inc., 2508 South Michigan Ave., Chicago 16.



IT TAKES EXPERIENCE TO  
MAKE THE FINEST PARTS





## Air Compressors

(CONTINUED FROM PAGE 118)

8. For automatic truck washer installations.

You will need a two-stage, water-cooled compressor if you are using truck washers to any appreciable extent. This will be true if the lift, pneumatic tools, pressure lubricators or spray painting equipment is operated continuously.

In some cases where air demands

fluctuate, it will be economical to install two compressors. One will be used as a stand-by unit, remaining idle until extra requirements cut it into operation automatically. This will enable the regular compressor to supply full, continuous flow of air and is extremely important when used in production spray painting.

It should be remembered that an air-cooled unit is not built for continuous service. Manufacturers recommend rest periods, and suggest that after a compressor has run five

minutes, there should be a rest period of a few minutes. Dual installation, an adequate storage tank or two tanks in series will permit this intermittent operation and save wear and tear and improve the output.

Two-tank installations are sometimes recommended with the pneumatic lift. It is well to have an extra tank for extra air storage capacity when large volume is required momentarily without much pressure drop—or when supply lines are long. In this case a second tank should be installed at the end of the line.

The ideal compressor should feature the following mechanical features, according to manufacturers:

1. Frictionless type main bearings.
2. Bearings allowing take up for wear.
3. Properly balanced and counter-balanced.
4. Adequate cooling areas—either for water or air.
5. Conservative speeds.
6. Minimum number of parts.
7. Automatic lubrication of simple design.
8. Easily maintained and repaired without special tools.

The fleetman should not be confused by motor ratings as a guide to the selection of the proper size compressor to suit his requirements. Displacement cannot always be judged by horsepower of the motor.

When ordering a compressor, after specific requirements had been determined, the fleetman should give the following information:

1. Whether ac or dc.
2. The line voltage.
3. Number of cycles and the phase.

Three phase current is unusual for fractional horsepower motors. It is almost certain that where a motor is to be connected to a line which is also being used for electric lighting, that the current will be either single phase or direct current. Where a two or three phase line comes into a shop and the lights are apparently used from that current supply, it will very likely be found that the lights are connected to one phase of the two or three line phase, and fractional horsepower motors can usually be connected in the same way. Manufacturers recommend use of two or three phase power current if and when available.

**END**

(Please resume your reading on P. 46)

**lighting equipment you need**

**Directional Signal No. 701.** Single-faced for installation on fender, body or frame. Baked black enamel finish. Amber plastic lens.

**Directional Signal No. 801.** Double-faced for front mounting; visible from front and rear. Baked black enamel finish. Amber plastic lens.

**Mirror Head No. 461C.** Self-rotated type, rhodium chrome head 6" in diameter, with 360° adjustability.

**Reflector No. 217.** Baked gray enamel finish. Shatterproof plastic lens. Rim extends beyond lens for extra protection.

Arrow has the most complete line of State and ICC approved equipment on the market—equipment that rates a well-earned okay from performance-demanding fleets. There is an Arrow product for every lighting requirement on every truck, bus or tractor—sturdily built and designed to stand up under years of hard use. Buy Arrow for safety after dark.

**Stop and Tail Light No. N-432.** with universal mounting bracket. Clear lower lens illuminates license plate. Available with or without chromium rim.

**Armored Clearance Light No. 47.** Housing around lens gives maximum protection. Red, green or amber lens. Baked gray enamel finish.

**Triple Marker Light No. 23.** Glass beehive lens in red, amber or green. Black enamel finish.

**Streamlined Marker Light No. 29.** may be used on corners in place of two lights. Red, amber, green, moonstone or clear lens; chrome, satin aluminum or black enamel finish.

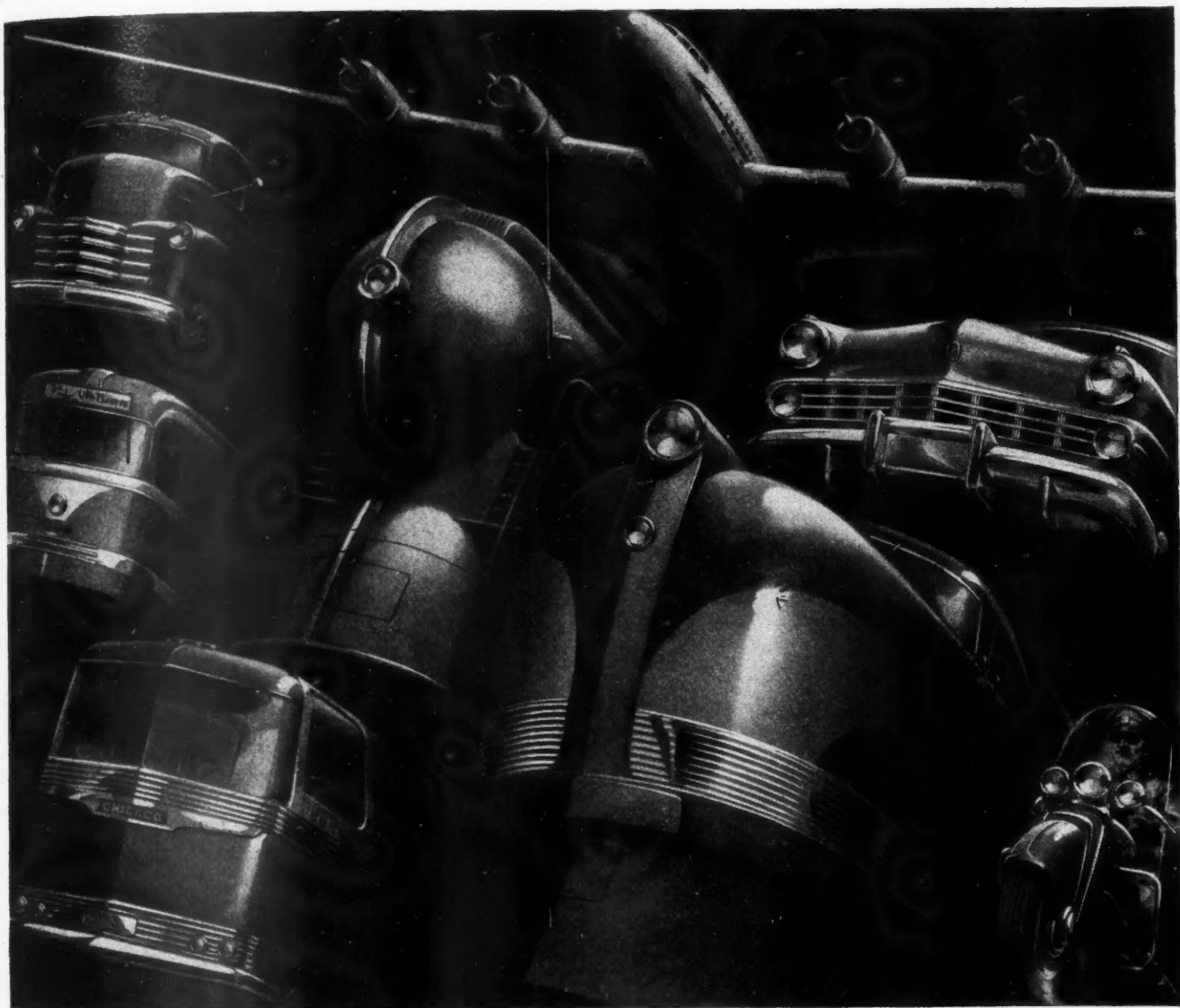
**SAFETY AFTER DARK**

**ARROW**

**ARROW SAFETY DEVICE COMPANY**

**MOUNT HOLLY, NEW JERSEY**

# 50 Years of Good Brakes



American BrakebloK is distributed through 39 NAPA Warehouses, assisting jobbers everywhere to give prompt, complete service.



AMERICAN

**Brake Shoe**

COMPANY

AMERICAN BRAKEBLOK DIVISION  
DETROIT 9 MICHIGAN

*American*  
REG. U.S. PAT. OFF.  
*BrakebloK*

**BRAKE LINING**

## Terminal Shop

(CONTINUED FROM PAGE 60)

since last service; for the total miles this month; and squares for total miles brought forward from last month and total miles this date. There is also a chart at the bottom for wheel bearing inspection checks.

The reverse side of the monthly service card shows tire location by brand number and a series of squares

to indicate completion of generator and regulator checks each 30 days; valve and injectors, each 10 days; and air cleaners checked at each oil change. For these last three the mechanic doing the work must give date and sign.

### Tire Records

WE have two forms for our tire records. First an inventory form (Fig. 6) which must be filled in and filed with the accounting department

at the end of each month. This inventory form is made up in duplicate, the original going in and the copy being filed in our shop terminal office. It shows the new and used tires on hand, the brand number for quick home-office identification, and the size.

The other tire sheet is the change record (Fig. 7) which shows every tire changed by a driver or by one of the shop men during the week. This record shows the date, the brand number, the make, the size, the unit number and the on and off, together with any explanation.

This record is also made out in duplicate, the original going in to the accounting department and the copy being filed at our terminal office.

### Payroll Voucher

ALL of our road units have tachographs and the discs are removed at whatever terminal receives the unit. This is done by the terminal manager or his helper. As soon as the disc is removed the driver is required to fill in an "explanation of stops," on his Driver's Daily Payroll voucher (Fig. 8).

This explanation of stops is then checked at the terminal with the tachograph disc. The log card number is entered on the "Tach" disc together with the "to & from" and the unit number.

For our "tach" check, the payroll voucher is the same as a driver's I.C.C. log.

The Daily Payroll Voucher is made out in triplicate. The original going in to the accounting department, the yellow copy being attached to the "tach" disc and sent to the traffic manager, and the pink slip being retained at the terminal office.

With the use of the above forms, we believe we have nearly perfect coordination between terminal shop and headquarters shop and accounting department. At one glance it seems like a lot of forms but our experience has been that it takes them all to give us a strong central control where four shops are all doing major repair and general maintenance work.

END

(Please resume your reading on P. 61)

WAREHOUSE FOREMAN: "HOW CAN YOU BE SO DUMB SO MANY HOURS OF THE DAY?"

FREIGHT HANDLER: "IT'S EASY, I GET UP EARLY."

**pillars** of engine performance



**JOHNSON  
TAPPETS**

AUTOMOTIVE • AVIATION • MARINE

*Johnson* PRODUCTS INC.  
MUSKEGON, MICHIGAN  
*"Tappets Are Our Business"*





## Can bus and truck earnings beat rising costs?

ONE thing is sure. Better lubrication can help any truck or bus earn money faster and longer. Equipment requires less servicing, can be operated on longer, heavier schedules. The best oil obtainable is the most economical for this work. Quaker State HD Oil is specially formulated to lubricate heavy-duty vehicles better and longer—keep

their engines cleaner, free of clogging, trouble-making sludge, gum and sticky "varnish." Skillfully refined from pure Pennsylvania grade crude oil, Quaker State HD Oil is always dependable—always uniform—gives maximum protection, maximum value. Try it—for better equipment earnings, and greater operating reliability and safety.

**QUAKER STATE**  
**HD OIL**  
AND SUPERFINE LUBRICANTS

Use Quaker State HD Oil for trucks, buses, taxis, tractors.  
Use Quaker State Motor Oil for passenger cars.

QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA

## Diesel Patrol

(CONTINUED FROM PAGE 38)

carbon particles. Yellow smoke from oil refineries meant acrid fumes were being sent towards the ceiling. Even backyard trash fires were found to be a source of "Smog."

Extensive laws creating the Air Pollution Control District of the County of Los Angeles were passed by the California State Legislature and the office, directed by Dr. Louis

C. McCabe, went to work to put the brakes on violators. Tips on the sources of fumes were followed up. One inspector even took to an airplane so that he could look down into the smokestacks of industrial plants to see what kind of fumes they were emitting.

### Diesel Patrol Began in '47

THE "Diesel Patrol" came into operation under Sections 24242 and 24246 of the California Health and Safety Code adopted in 1947.

Each of the two patrol cars travels an average of 2000 miles a month, scouring the main highways for trucks which emit excessive fumes.

In an average month, the two patrols issue 76 citations for violations. Approximately 75 per cent of these offenders cure the offending source with the necessary overhaul or repairs immediately, while the remainder usually do so before court action is taken.

Engineers surveying the causes of "Smog" found that diesel trucks, while not the main source, were nevertheless contributing to the fumes and smoke which annoyed the area. The "Diesel Patrol" was placed into operation to obtain compliance with the law, while trucking companies themselves cooperated by constantly checking and repairing their equipment to avoid excessive fumes.

Edmund F. Stampfli and Irving Levitan are typical patrolmen. Intelligent and well-educated, the pair attempt to understand the causes of violations as they patrol the highways. Stampfli is a graduate mechanical engineer and Levitan is a graduate chemical engineer. This background is important in their work.

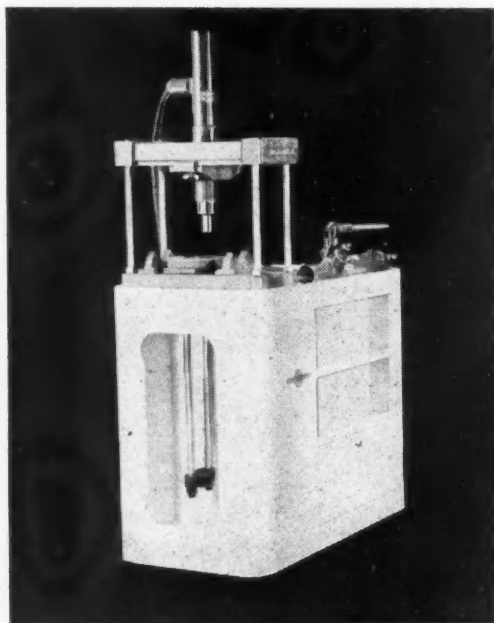
The patrolmen drive at snail-like speed when there are few trucks on the road. When traffic is heavy, they park at intersections for their surveillance.

Despite the educational program undertaken by Los Angeles trucking firms, the patrolmen find that few drivers know of the diesel patrol or of the regulations, although in recent months trucking employees are learning of the program.

Truckers roll by the creeping patrol car, many of the drivers grinning at the inspectors because they know their diesel engines are not violators. The old hands around Los Angeles County are beginning to know the diesel patrol, while many out-of-state truckers are becoming acquainted with it the hard way.

"Drivers themselves can often keep the engines from belching smoke by not floorboarding the accelerator," says Stampfli. "Sometimes it's hard for companies with 400 trucks to keep all their stock in shape. That's why we issue warnings first."

(TURN TO PAGE 126, PLEASE)



## ~~POWER-PLUS~~ PORTABLE PRESS does Big Press Work *right on the job*

Take a Power-Plus jack—plus precision press—plus press stand—and you have a complete, portable 10-ton hydraulic press. You can roll it right to the job—it does big press work—assures perfect workmanship.

Power-Plus press adapters and fittings will handle bushings, bearings, axle and flat work—



in fact every type of pressing operation. There's plenty of space on the shelves of the steel Power-Plus stand for all adapters, fittings, and tools—ready for use when you need them.

Power-Plus press and jacks are time savers—money savers. You can't afford to be without them. Ask your jobber or write direct.

PERFECTION

~~POWER-PLUS~~  
TOOLS

G. A. C.  
MANUFACTURING CO.  
Ashland, Ohio



**PARISH**  
Heat-Treated Frame

*The Keel of the Chassis*

## IT'S THE *"Spring-back"* THAT COUNTS

In the above illustration a Brinell hardness test is being made of a *PARISH* Heat-Treated truck frame. *PARISH* inspectors make sure that "No off analysis" steels get by. *PARISH* Frames *must* have just the right hardness to give them the "*Spring-back*" that makes them different.

Made of special steel and alloys, and formed by presses that have a capacity of 3,000 tons, *PARISH* Heat-Treated Frames have a strength value 125% greater than steel commonly used. Under the stresses and strains of rough roads and heavy loads *PARISH* Frames "*spring-back*" immediately to their original shape, keeping all parts attached to them in correct relation to each other.

*Insure yourself against costly hold-ups* due to maladjustment of parts caused by sprung frames. Specify *PARISH* Pressed Steel Heat-Treated Frame—the frame that lasts years longer because of its "*spring-back*" quality—in all new trucks, tractors, trailers and replacements.

**PRESSED STEEL HEAT-TREATED FRAMES FOR TRUCKS AND TRACTORS**

**PARISH PRESSED STEEL CO. *Subsidiary of* DANA CORP.**  
**READING, PA.**

*Western Representative: F. Somers Peterson, 57 California St., San Francisco, Cal.*



## Diesel Patrol

(CONTINUED FROM PAGE 124)

### First, a "Notice"

WHEN an inspector observes a violation, he stops the truck and informs the driver of the violation. He inspects the chauffeur's or operator's license, copying the information from it onto the "Notice." (Fig. 1).

The patrolman-inspector questions the driver as to his address, making

sure that it tallies with the one on the license. He also checks the driver's description against the license, noting any variations on a separate report. After copying the owner's name and address from the truck registration card, the inspector asks the driver to sign the front of the notice. If the driver refuses to sign the report or answer questions regarding the cause of the smoke, this also is noted.

Violators are cited according to what is known as the "Ringlemann

Smoke Chart." See cut p 38. It is divided into five sections, ranging from gray to solid black, with each division representing 20 per cent density. A hole in the center of this chart enables the inspector to frame the fumes and judge the density of the smoke.

"If the diesel stack spouts fumes of 20 per cent density or more for at least three minutes, we have a violator," explains Levitan.

When a vehicle is observed emitting smoke not exceeding the time permitted by the State Code, but when this time approaches the limit, the inspectors stop the truck and inform the driver of their observations. The inspector makes out a report (Fig. 3), recording the date and time of the observations; the driver's name, address, and chauffeur's license number; the vehicle license number and cab number; the presumed reason for the smoke; duration of the smoke, and the actual time that the vehicle was detained.

The inspectors ask the driver to report the warning to his company, urging him to cooperate in the program of smoke abatement. The trucker is not given a "Notice" in this case, however.

The diesel patrol is considered so important that the Air Pollution Control District has placed four of its 14 inspectors in this service. They have been schooled in courtesy and educated in the problems of diesel truckers. Even when violations are observed, the delay is seldom longer than 10 minutes.

### Then, a "Questionnaire"

THE truck driver is served with a copy of the "Notice" at the time of the violation. A few days later the company receives a questionnaire (Fig. 2) from the district office. This form asks questions which enable the district officers to determine if the trucking company is endeavoring to abate excessive diesel smoke. If the answers convince the Senior Air Pollution Inspector that this is the case, the form is marked "Abated" and filed.

But if the questions are not answered, or if the answers are considered incomplete, self-contradictory, obviously inaccurate, or otherwise unsatisfactory, the company is sur-

(TURN TO PAGE 128, PLEASE)

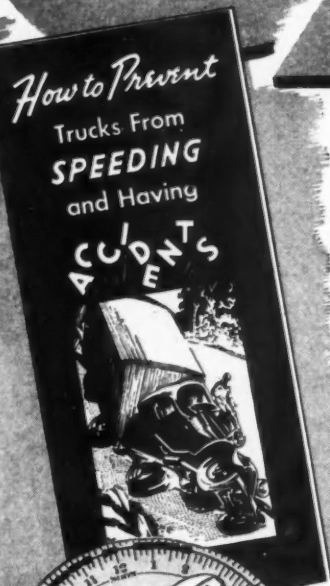
Here's the Answer  
to Your  
Speeding Problem

... in this helpful folder  
—write for it today

SPEEDING is the "nightmare" of the truck owner who is trying to hold down his operating costs. He knows Speeding wastes gas, often ruins tires and unmercifully racks the motor—in every way greatly increasing the wear and tear on the vehicle.

But that isn't the worst!

ACCIDENTS! Nearly all accidents are due to the driver *speeding* to make up lost time. And then, perhaps—*CRASH!!* A costly truck wrecked or a pedestrian maimed and a damage suit in the courts. That's why many insurance companies urge that *Servis Recorders* be installed by the trucking firms they insure. Write today for our folder—"How To Prevent Speeding". The Service Recorder Co., 1375 Euclid Avenue, Cleveland 15, Ohio.



**The Servis Recorder**

Helps Prevent Speeding and Accidents



# MAINTENANCE EFFICIENCY

## ME BUS TRANSPORTATION

**100%** of the operating companies  
winning the 1948 Bus Transporta-  
tion Maintenance Awards  
use **Spicer**-equipped  
busses...convincing proof  
of **Spicer**-products  
dependability.



**SPICER MANUFACTURING** SERVICE  
Division of Dana Corporation • TOLEDO 1, OHIO

TRANSMISSIONS • PASSENGER CAR AXLES • CLUTCHES • PARISH FRAMES • TORQUE CONVERTERS  
STAMPINGS • UNIVERSAL JOINTS • SPICER "BROWN-LIPE" GEAR BOXES • RAILWAY GENERATOR DRIVES

## Diesel Patrol

(CONTINUED FROM PAGE 126)

moned to appear before the Diesel Smoke Abatement Board, a panel composed of nine representatives of trucking organizations and governmental divisions.

Maybe, a "Citation"

**I**F a "Notice" is the second written within 30 days for the same ve-

hicle, or the second within 90 days for the same driver, a citation to appear before this board is in order.

If a truck belonging to XYZ Co. is given a "Notice" and responds with a satisfactory answer and in a day or two a second XYZ truck is caught as a violator, the company would be given another "Notice" for this second violation and summoned before the Diesel panel as a repeat violator. The company would be asked to explain why two of their trucks had given out excessive fumes.



# BIEDERMAN

## The All-Star Truck

- ★ Advanced Design
- ★ Ready Accessibility of all Parts
- ★ Sturdy Construction
- ★ Dependable Power
- ★ Capacity for Big Loads

### DEALERS:

The Biederman National Standard Model, the peacetime successor to a long line of quality trucks since 1920, is a truck you cannot afford not to investigate. Nothing but the most sturdily constructed units by America's leading manufacturers are built into it. It's an All-Star team in itself. It has strength, durability, comfort for the long trip, easy accessibility of every part and modern design.

This is your opportunity to secure the Sales Franchise of a quality product. There is still some territory open. Write or wire us today for complete specifications.

**BIEDERMAN MOTORS CORPORATION**  
CINCINNATI 14, OHIO

If the firm could not give a satisfactory answer, court action would be taken on the grounds the company was not cooperating in the "Smog" abatement program's diesel ordinance.

Drivers are ordinarily given citations for second offenses within 90 days when the inspectors believe that the violation was caused by the way the driver handled the truck rather than by the engine. The driver responsibility for smoking is determined by the inspectors. When they observe or follow a truck for some distance and believe that the smoke is caused by the driver's operation rather than the motor, the driver is handed a "Notice." If they follow a truck and believe the smoke is caused by the engine itself rather than the handling, responsibility is not directly fixed to the driver.

The inspectors say one way they determine driver blame is by observing a truck to pass without smoking, then began to smoke. This, they say, indicates the driver is careless in handling the truck.

Drivers who refuse to answer questions by the inspectors or who refuse to sign the "Notice" are liable to appear before the panel.

### Details of the "Panel"

**T**HIS panel, known as the "Diesel Smoke Abatement Board," is unique in itself. It represents a fine example of cooperation between trucking companies, the unions, and governmental officials. It meets the first Friday of each month at 9:00 a.m. in the Air Pollution Control District office at 5201 Santa Fe Avenue in Los Angeles, where it hears such cases as may be brought before it by the Senior Air Pollution Inspector, John L. Mills, who serves as chairman of the board.

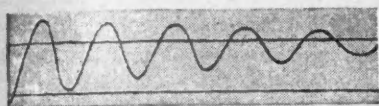
The members of this board are Officer G. Blackburn, of the California State Highway Patrol; M. F. Nuremberg, chief of the Uniform Division, Los Angeles County Sheriff's Department; Captain Roger Murdock, commander of the Traffic Enforcement Division, Los Angeles Police Department; W. F. Dykes, of Local 224, Line Drivers' Union of the Teamsters' Union; Wade Sherrard, general manager of the Motor Truck Association of Southern Cali-

(TURN TO PAGE 130, PLEASE)

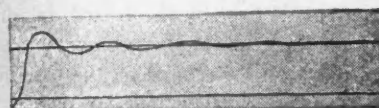


# When a Man is "All In"

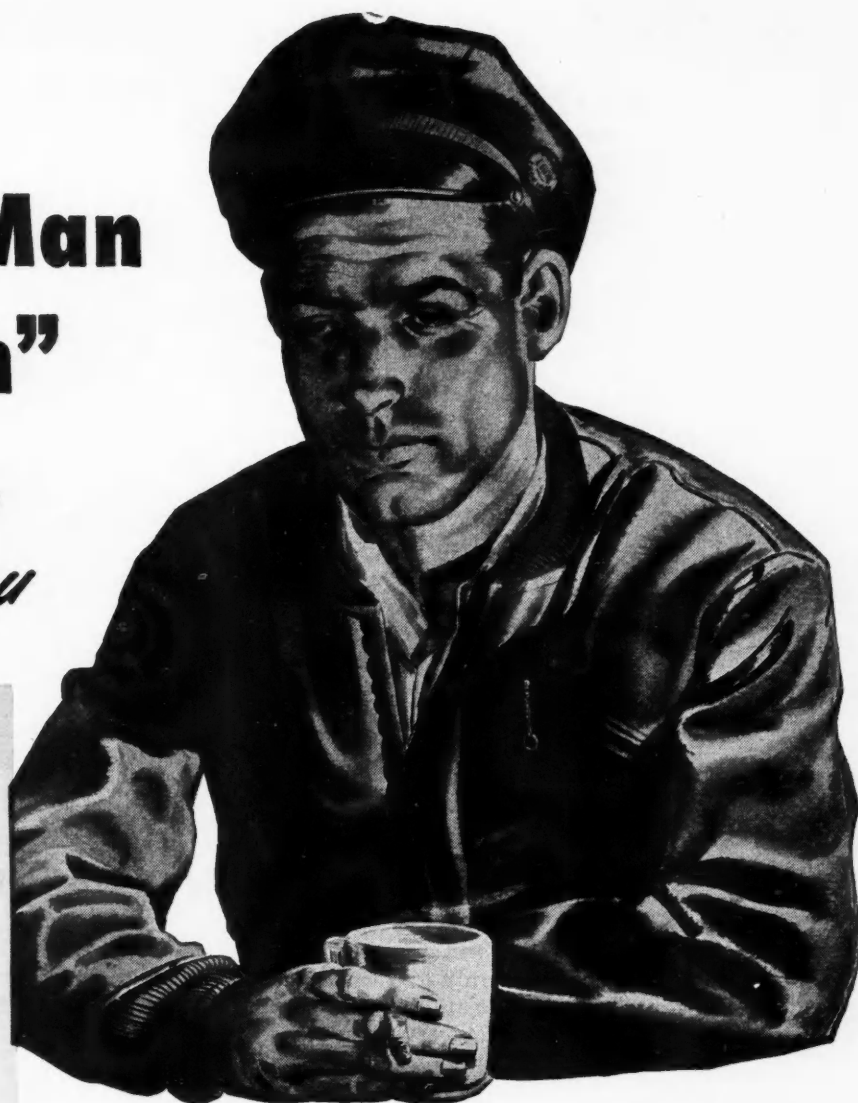
*He Can't Go  
All Out for You*



**STANDARD TRUCK CUSHIONS** — Poor take-up of shock followed by rough rebounds. Drivers take up to 50,000 shocks like this a day.



**BOSTROM HYDRAULIC SEAT**—Soaks up the initial shock and levels out—like a passenger car ride.



## THESE ENGINEERING RIDE-GRAPHS

tell you better than words why . . . Safety slips! Schedules lag!  
Equipment and cargoes take abuse!

Yes . . . Bostrom hydraulic seats more than pay for themselves by reducing driver fatigue. You get additional savings by cutting seat repair bills. Ask your dealer for a demonstration. For free folder, "12 Eye Openers Concerning Truck Seats" write:

**BOSTROM MFG. COMPANY**  
133 West Oregon Street • Milwaukee 4, Wisconsin



*There is NO Substitute  
for a Bostrom Ride!*

**BOSTROM**

Bostrom Hydraulic Seats now standard or optional equipment on the following trucks: GMC, Diamond T, Federal, Hendrickson, Peterbuilt, Walter, Ward La France, FWD, Dart, Oshkosh, and Coleman. Specify Bostrom Model 47 Seats on your new trucks.

# At Last . . . A Really Good NON-INFLAMMABLE STRIPPER



Above—Truck cab before application of Magnus Stripit.



Right—Same cab after removal of paint.

## Brush on Magnus Stripit . . . Let Stand . . . Remove Paint with Cutting Stream of Water!

Here's a *ready-to-use* paint remover that clings to vertical surfaces and spreads uniformly and easily. It goes right to work on finishes, retaining its moisture and stripping action for long periods because it evaporates very slowly.

### MAGNUS STRIPIT

is the answer to your demand for a versatile paint remover usable on all types of finishes. One application strips several coats—including primers.

Stripit is safe to use on *all metals and wood*. It is non-inflammable itself and does not require the use of inflammable solvent rinse.

A cutting stream of water with a flat spade type spray at high pressure usually is sufficient for removal of puckered coats. Work with a wet bristle brush may be required in a few cases. One application usually takes off 3-4 layers of finishes. 1 gal. covers 100 sq. ft. of surface.

*Would you like to try Stripit? Ask for details on our 30-day free trial offer.*

**MAGNUS CHEMICAL COMPANY** • 38 South Ave., Garwood, N. J.  
In Canada—Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que.  
Service representatives in principal cities



## Diesel Patrol

(CONTINUED FROM PAGE 128)

fornia; George W. Wallace, fuel and lubricant engineer; Augusta (Gus) Martin, shop superintendent of Pacific Freight Lines; Anthony (Tony) Lombardi, road superintendent of Cantlay and Tanzola, Inc., and the chairman.

Those summoned to appear before the panel are requested to wait in an ante room, and each person is called separately after the board members study the case. Details of the alleged violation are presented to the panel, and members ask questions, advise "Smog" policies, and requirements under the State law. In no case is the person told of the board's decision at the time the case is reviewed; instead the alleged violator is informed of the result by mail.

Board members may elect to dismiss the case after the hearing. Sometimes the case is continued for another month, pending investigation by control officers; further information; or remedial action by the truck owner. Often the violator is placed on probation by the board, in which case the Senior Inspector maintains a continuous record on the case until the probation period has passed.

### Only 11 Cases in Court

**T**HROUGH the effective work of the cooperative board, only 11 cases were taken to court in 1948 during a representative five month period. First, trucking companies have carefully maintained their diesel equipment in order to keep offensive fumes at a minimum. And in the case of violations, most firms have seen the need for the regulations and have repaired the equipment, thus averting court action.

The board has attempted to be fair in its operation, but when it has recommended court action, it has been sure. None of the cases taken to court this year won acquittal.

Probably the most severe sentence imposed was on a diesel owner-driver who failed to appear in court until brought in on a bench warrant. He was fined only \$100, but was placed under probation for two years by the judge, with an additional fine and jail sentence facing him.

(TURN TO PAGE 134, PLEASE)

# Thermoid

## THERMO-BLOCKS

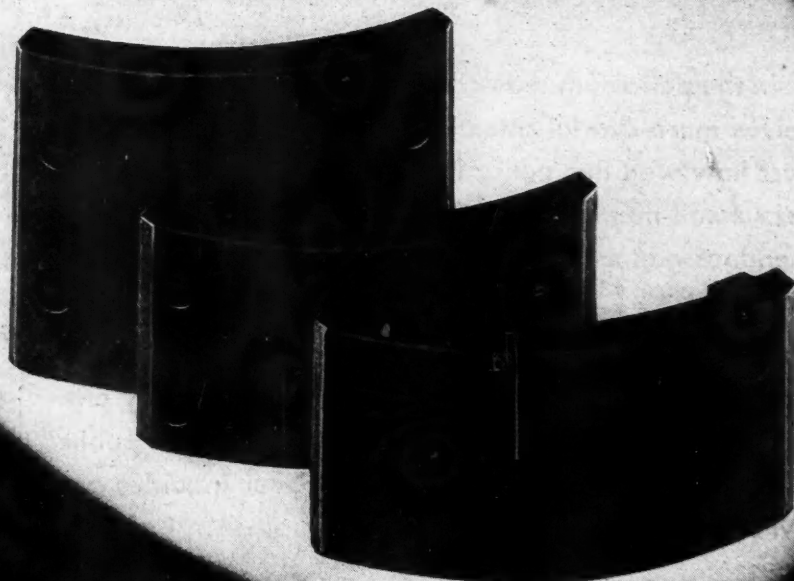
Thermo-Blocks are built for heavy duty service. They always give top performance under all operating conditions.

Their longer life reduces downtime, lowers maintenance costs. Get the

Thermo-Blocks especially designed for your units.

Use them on all heavy duty re-line jobs.

**Thermoid Company, Trenton, New Jersey**



The "Longer-Life" Line for heavy duty service



## Diesel Patrol

(CONTINUED FROM PAGE 130)

At the other end of the scale was a \$3 fine imposed by a justice of the peace in a rural community. The sentence was suspended on the driver's plea that he had a large family.

Out-of-state corporations or owners face the same regulations as do California trucks. "Notices" are written for these violators, and office citations issued if the questionnaire is not re-

turned within a 10 day period. If the corporation sends a representative to the Diesel Smoke Abatement Hearing Board, the case is handled in the usual manner.

If no person appears to represent the corporation, or if the case is to be referred for court action, inquiry is made to the California Secretary of State to determine who, if anyone, is the resident California agent for the corporation or owner.

Letters are sent to the home office of the corporation or owner, and to

the person within California designated to receive service, asking that an appearance be made before the board.

The State law provides that when such a letter does not produce results, instructions shall be issued to the Diesel Patrols to stop trucks of the same company when they are observed emitting excessive smoke. The inspectors then write the "Notice" in the usual manner, but arrest the driver and take him before the magistrate with jurisdiction over the area where the violation occurred, recommending here that bail be set at \$500.

California's watch on diesel trucks which belch black fumes are considered so important, that highway and city patrolmen have been alerted to watch for violators.

To what precise degree diesel fumes actually contribute to the overall "Smog" problem is not known yet, but engineers and scientists are measuring specimens of contaminated air so they will know if existing regulations should be tightened.

They do say that diesel fumes are dangerous in the immediate vicinity where the violation occurs, since the excess smoke is heavy and lies low on the ground where it will bother individuals.

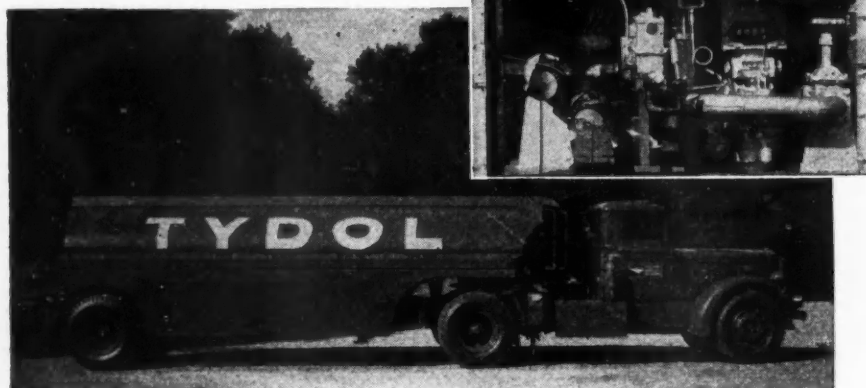
Diesel truckers in the Los Angeles area have a new patrol to watch for, and they have a new code of maintenance for their trucks—thanks to heavy industry, unique geographic formation, and freak atmospheric conditions.

When you are trucking into Los Angeles—and know you have obeyed all of the traffic laws—only to hear the sound of a siren, remember the "Diesel Patrol."

END

(Please resume your reading on P. 39)

## TIDE WATER ASSOCIATED USES INTERNAL SAFETY VALVES



In the petroleum industry, no phase of the business receives more careful attention than SAFETY in handling. Just how well this policy has paid off is reflected in the very small number of accidents in proportion to the tremendous gallonage handled.

Tide Water Associated Oil Company is one of the major marketers who have equipped much of their delivery equipment with S. & J. Internal Safety Valves. They protect the product, the equipment, the driver, and the public in cases of fire or highway accident. Your inquiries are invited.

**SHAND & JURS CO.**

BERKELEY, CALIFORNIA

NEW YORK

CHICAGO

HOUSTON

LOS ANGELES

SEATTLE

**SHAND & JURS**





*for Safety's Sake..*  
**SELL**

# **WAGNER LOCKHEED HYDRAULIC BRAKE FLUID**



## **Used in New Cars**

Wagner Lockheed Fluid... Truck, bus, and car manufacturers use it.

## **Most Advertised**

Wagner Lockheed Fluid... Advertised more than any other brake fluid.

## **Largest Selling**

Wagner Lockheed Fluid... Nationally outsells competition.

### **EVERY REPAIRMAN NEEDS**

Bulletin HU-17G and HU-197  
Tips for better Brake Service—free on request

### **WAGNER LOCKHEED FLUID... AMERICA'S LEADING BRAKE FLUID**

- 1** Assures year-round operating performance.
- 2** Mixes with other approved fluids.
- 3** One mixture for ALL cars and trucks.
- 4** Maintains chemical characteristics after long use.
- 5** Warehoused throughout U. S. and Canada.
- 6** Available everywhere through leading jobbers.

### **Wagner Electric Corporation**

6470 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.



LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • NoRel  
CoMoX BRAKE LINING • AIR BRAKES • TACHOGRAPHS  
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES

H48-16

## New Products

(CONTINUED FROM PAGE 67)

### P75. Winter Tread

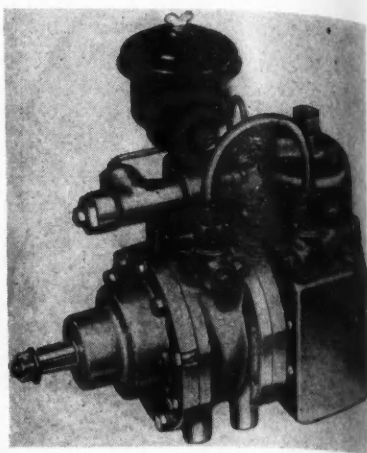
Winter-Grip tread, for ice and snow driving, said to have greater skid resistance and better traction.

Winter-Grip is obtained by means of a device known as the Goodyear Tractionizer which mechanically pierces the tire tread, with small holes 1/8-in to 3/16 in. deep. The

treatment is gauged to last the entire winter season, for normal mileage requirements. Goodyear Tire and Rubber Co., Akron, Ohio.

### P76. Wagner Compressor

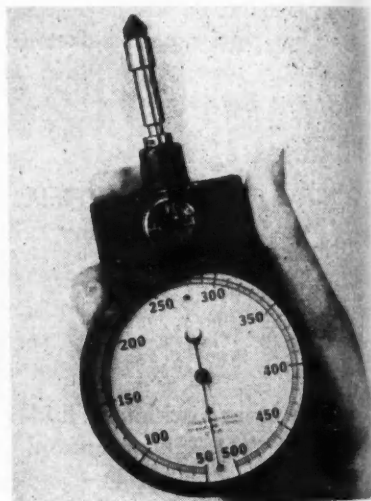
New models of the Wagner Rotary Air Compressor feature refinements of operation and application. Air-cooled, the compressors are engineered to precision running balance and operate with uniform torque loading.



Conventional type rotary pump is rated at 7 1/2 cu ft capacity. This unit is easily adapted to be driven from the vehicle engine and provides a supply of compressed air sufficient for all except heavy vehicles, using exceptionally large amounts of air. Wagner Electric Corp., St. Louis, Mo.

### P77. Hand Tachometer

Compactness, light weight, portability and accuracy are features of the Model 4800 Jones Tachometer. It is of the mechanical centrifugal type indicating with equal accuracy in either direction of rotation.



The three ranges are included in the one instrument, furnishing speed indication from 50-50,000 rpm, or 25-25,000 rpm. Range selection is accomplished by rotating the knob marked "Low, Medium, High."

A device permits holding the pointer at measured speeds after the instrument has been disengaged. A push button on the right side of the case, when depressed, allows the pointer complete freedom of movement. Another push button on the

(TURN TO PAGE 138, PLEASE)

**BUILT-IN LIGHT**  
Provides shielded, shadowless illumination on work area. Independent on-off switch is built-in.

**FREE-FLOATING SPINDLE**  
Design prevents misalignment, side thrust and whip. Precision splines in spindle and sleeve.

**FOUR PRECISION BALL BEARINGS**  
Two on spindle, two on drive sleeve. Pre-lubricated and sealed precision type, no oiling required.

**ONE-PIECE HEAD CASTING**  
Insures perfect alignment. Double-plug binder locks the head to column. Column bearing is NOT split.

**BELT TENSION RELEASE**  
Flip of lever removes tension from belt for easy speed changes. Proper belt tension maintained.

**QUILL BEARING ADJUSTMENT**  
Shoe-type take-up provides feather-touch tension and secure locking. Quill bearing is NOT split.

**DEPTH GAUGE**  
Controls feed depth, length of return stroke, or locks spindle in any position. 16th graduations.

**TABLE LOCK**  
Double-plug binder securely locks table to column. Eliminates misalignment. Column bearing is NOT split.

**INTERCHANGEABLE SPINDLES**  
Spindles available to take No. 2 Morse taper shank tools, and for 1/2" straight shank tools, router bits, shaper cutters, etc.

**NEW!**  
SOUTH BEND  
14"  
Drill Press

#### CAPACITIES — SPECIFICATIONS

**CAPACITY**  
Maximum drill size in iron or steel—1/2".  
Drills to center of 14 1/2" circle.

**CHUCK**  
Capacity—0 to 1/2"

**SPINDLE**  
Regular drill chuck type supplied.  
Travel.....4"

**CHUCK TO BASE DISTANCE**  
Bench Model—17"  
Floor Model—46 1/2"

**SPINDLE SPEEDS**  
Four—655 to 4530 r.p.m.

**TABLE SIZE**  
10" x 10". Tilts to any angle.

**Bench Model \$129.30**

**Floor Model \$144.30**

Prices, f.o.b. factory, include drill chuck and 1/3 h.p., 115 or 230 v., 1 ph., 60 cycle motor and switch.



**SOUTH BEND LATHE WORKS**

BUILDING BETTER TOOLS SINCE 1906 • 445 E. MADISON ST., SOUTH BEND 22, IND.



# Tops for performance... and for business-building appearance!

NEVADA 8385

## C. P. CARTAGE CO., INC.

HAULING THE RELIABLE WAY  
715 N. ST. LOUIS AVENUE  
CHICAGO 24, ILL.

May 15, 1948

O.K. Truck, Trailer  
and Equipment Co.  
620 N. May St.  
Chicago 22, Ill.

Gentlemen:

In January and March of this year we purchased two all-aluminum bodies from you and now operate two units with these bodies in the Metropolitan Chicago Area.

Since putting these two all-aluminum bodies on the chassis, it definitely has been an asset to our business. We have had any number of inquiries about the bodies, both from our own accounts and fellow competitors in the trucking business. The very appearance of these units on the street is a good business selling feature.

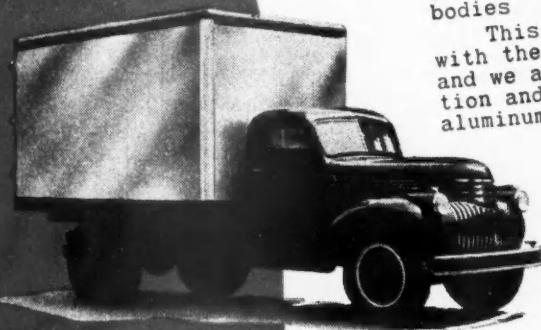
In addition to this, the two units equipped with these all-aluminum bodies show a greater degree of efficiency in overall performance, as compared to our units equipped with the conventional type bodies.

This Company in the future will equip its units with the all-aluminum body that your Company builds and we are happy to express our complete satisfaction and approval in the change made to the all-aluminum body.

Yours very truly,

*Michael J. Pantone*

Vice-Pres.

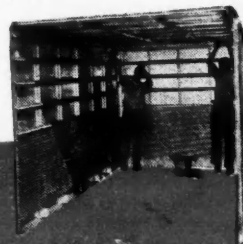


MJP/EFC



Promptly assembled from standard parts, in your choice of thousands of design combinations. All parts replaceable for quick, inexpensive repairs. Write for name of nearest distributor.

Reynolds Metals Company, Truck & Trailer Division, Louisville 1, Ky.



## REYNOLDS ALUMINUM TRUCK BODIES "THE LIGHTWEIGHT CHAMPIONS OF THE ROAD"

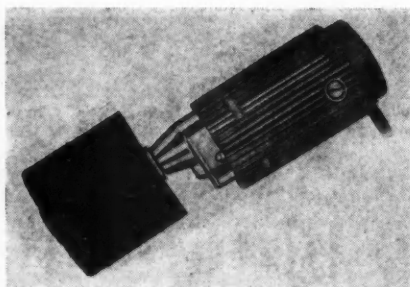
## New Products

(CONTINUED FROM PAGE 136)

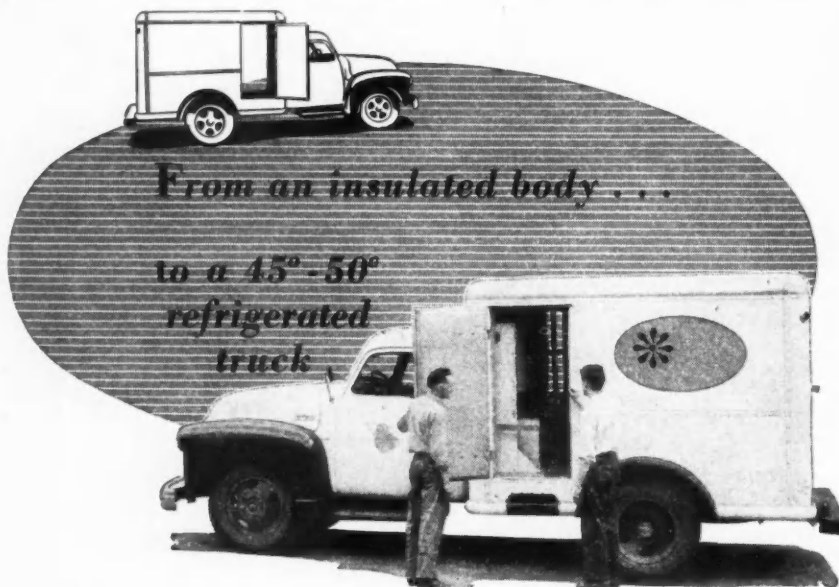
left side of the case holds the pointer and records the speed until released. Instrument complete with driving tips and peripheral wheel. Jones Motrola Corp., Stamford, Conn.

### P78. Drum Sander

Portable drum polisher and sander, Model 49, for polishing and sanding



irregular, flat, and curved surfaces. Spong-rubber drum gives a cushioned backing.



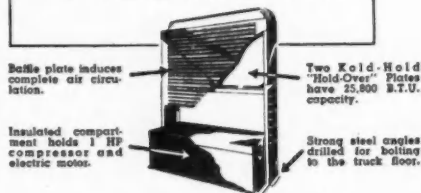
\*Name on request

# As simple as 1-2-3

with KOLD-HOLD'S  
new *Pakage* truck unit

Hi-temperature refrigeration of perishables is achieved quickly, easily and economically through the installation of the new "Pakage" truck unit. This unit is a completely self-contained refrigeration system which you can install (see right) in from two to three hours without special body work, holders or brackets. It works well in any properly insulated body, regardless of age and it maintains a 45° to 50° temperature throughout the longest day's deliveries. The unit recharges itself by simply plugging in to any 110V outlet. 220V motor is available if desired. Write for the "Pakage" truck unit bulletin for information.

1. Cut two holes in the floor of the truck for air intake and discharge. Dimensions and measurements come with the unit, as well as complete installation instructions.
2. Push the unit into position over the holes and bolt securely into place. This is all the installation required.
3. Plug into 110V outlet. Twenty foot rubber covered cord is supplied with the unit. If desired, a connection box may be installed outside the body for greater convenience.



WRITE FOR THIS FREE LITERATURE!  
Efficient Truck Refrigeration, "Pakage" Truck Unit, and separate bulletins on Truck Refrigeration for Meat, Milk, Ice Cream and Frozen Foods.

## KOLD-HOLD

Jobbers in Principal Cities

KOLD-HOLD MANUFACTURING CO.

PROCESsing TRANSPORTING  
protects every step of the way

620 E. Hazel St., Lansing 4, Michigan

Specifications are: speed of drum, 1400—600 rpm; size of drum, 3 in. diameter x 3-in. long; universal ac-dc motor, 115 volts; weight, 3½ lb. Portable Electric Tools, Inc., Chicago, Ill.

### P79. Driver's Wallet

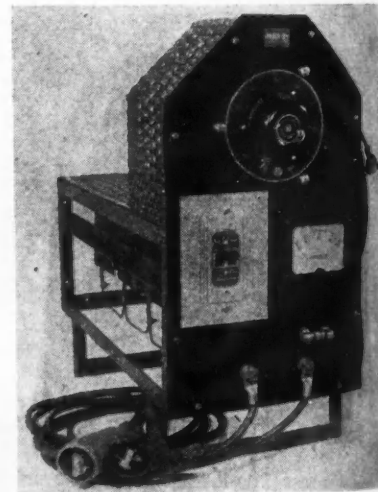
The Beard Driver's Wallet features 5 compartments for currency and papers, nylon-stitched thread, Talon



zipper, durable brass chain, with a leather belt loop. Made of quality elkhide. Size overall—3½ x 8½ in. Beard Leather Factory, Ft. Wayne.

### P80. Heavy-Duty Charger

Heavy-duty charger accommodates 1 to 16 6-volt batteries or 1-8 12-volt batteries. Operates on a 110V-60 through the use of a full-wave se-



lenium bridge rectifier that assures minimum ripple. Variable control permits selection of desired charging rate up to 12 ampere maximum. The ac line is protected by a 15-ampere circuit breaker while a fuse protects the dc line. Maximum rating is 3½ KVA. Bowers Battery and Spark Plug Co., Reading, Pa.

(TURN TO PAGE 140, PLEASE)

# is the **ONE** Belt that is ***Specially Engineered for*** **TRUCKS and BUSES**

**Records Show  
50% to 80% Longer Life  
Than *Any Other Belt!***

The *written* statements of well-known Fleet Operators which appear on these two pages tell a story of real importance to every operator who cares about reducing his costs and increasing his profits.

Please note that these statements are all made by *practical* men—General Managers of Fleets—Purchasing Agents—Superintendents of Maintenance — men who know from *experience* just how important a good truck belt is in keeping trucks on schedule, in avoiding costly delays, in reducing operating costs—in getting the job done *on time* and *at a profit!*

These men know, as you do, that a truck belt is actually a most important part of the motor. No truck can run without a belt. And, while the belt's initial cost is small, it can cost a lot of dollars if at some critical moment it fails and holds the truck idle while a road-service call is made.

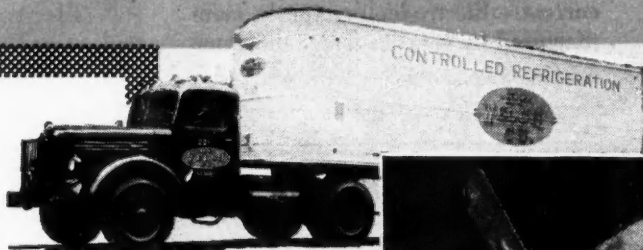
## **Saving Road Delays Pays Really Big Dividends**

Please note also, that these operators tell not only of *cutting their belt costs actually in half*—or more—due to the much longer life of the Gates Truck Belt. They emphasize particularly the *even greater* savings this belt gives them by cutting down road delays and thus increasing priceless *operating time* — the only thing that pays them (or you) a profit.

We believe you will want to read every one of these statements. Surely they will convince you that you, too, can profit by using the one belt that is specially engineered for trucks and buses—the Gates Truck Belt.



The Mark of Specialized Research



**Why Expect  
TRUCK BELT SERVICE  
from a  
Passenger Car Belt?**

You wouldn't use a Passenger Car **TIRE** on a Truck. Why use a Passenger Car **BELT**?

The moment you think of it, you know that a typical truck belt must carry more than 3 times the horsepower load of a passenger car belt. Moreover, all the other strains and stresses—the hours of continuous operation—the speed of acceleration and deceleration—the starts, the stops—the idling in low gear—all are far greater in the case of Truck Belts. Isn't it only the part of wisdom, then, to use the belt that is *specially engineered* for this more demanding service—the **GATES TRUCK BELT!**

**THE GATES RUBBER COMPANY**

DENVER, U. S. A.

"World's Largest Maker of V-Belts"

**Gates Belt Jobbers  
in Every City  
Can Supply You Promptly**



## New Products

(CONTINUED FROM PAGE 138)

### P81. New Electrode

Electrode for welding cast iron, Softweld, is for depositing dense, soft machinable welds in gray iron castings. Softweld is a non-ferrous electrode and operates with a soft steady arc on either alternating or direct current. Electrodes previously manufactured by Lincoln under the name

Softweld have been discontinued. Lincoln Electric Co., Cleveland, Ohio.

### P82. Tire Lifter

The Burch Tire and Wheel Lifter designed to enable one man to lift the tire and wheel with one hand, roll it into position, and then rotate until holes in the wheel correspond with the studs.

Ball-bearing casters, ball bearing-rollers for holding the wheel and tire, and swivel-mounted roller brackets



are features of tool. Leverage is such that only about 25 lb of lifting effort is required to handle an 11.00-22 tire. The Cam Tool Co., Inc., Oakland, Cal.

### P83. Sta-Ful Batteries

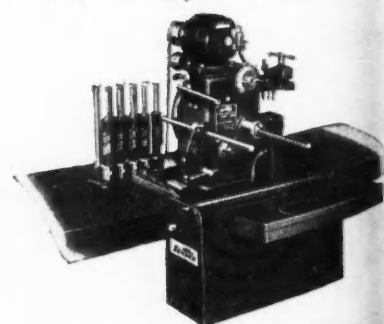
Auto-Lite Sta-Ful batteries, now available for application on practi-



cally all sizes for passenger cars and light trucks. Auto-Lite Battery Corp., Toledo, Ohio.

### P84. Honing Machines

The LBA-650 wet honing machine provides increased honing speed with an accuracy of .0001 in.



Features include a 1/3 hp motor, capable of handling heavy loads continuously, a frictionless stone feed-up control, and a new honing pressure control which simplifies selection of the right honing pressure for any job. An improved pin fitting gage speeds up the accurate gaging of piston pin holes and other jobs where exact duplication of size is required. Sunnen Products Co., St. Louis, Mo. (TURN TO PAGE 145, PLEASE)

**FOR PRE-LUBRICATION\***

SOLD IN  
8-OUNCE  
1/2-GALLON  
1-GALLON  
5-GALLON  
CONTAINERS

**A PROTECTIVE  
ARMOR OF  
DRY GRAPHITE  
FILM LUBRICANT\***

**NOW** — "run-in" periods for new and rebuilt engines cut to less than two-thirds.

**NOW** — "standby" lubrication which protects vital parts from the first turn of the engine until a complete oil film is established.

Use of dgf-123 assures: ● Reduced Frictional HP Loss; ● Close Tolerances ● Protection during temporary oil failures; ● Lower Operating Temperatures of Bearings; ● Less Oil Consumption; ● Shorter "run-in" periods; ● Smoother Bearing and Rubbing Surfaces; ● Less Corrosion of Cylinders and Rings; ● Reduced Costs in Maintenance, and, ● Longer Engine Service Life.

Bring your lubrication problems to Our Technical Department. dgf-123 and Miracle Power serves many uses.

**Sold Exclusively By**

**THE AP PARTS CORPORATION ★ TOLEDO 1, OHIO**

MANUFACTURERS OF THE FAMOUS AP "MILEAGE GETTING" MUFFLERS AND PIPES

## New Products

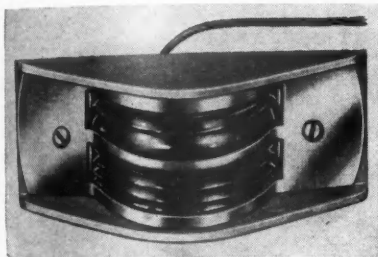
(CONTINUED FROM PAGE 142)

### P85. Socket Wrench

The 78 additions to Proto power socket wrenches include 15 sockets for  $\frac{3}{8}$  in. drive, 17 sockets for  $\frac{1}{2}$  in. drive, 21 sockets for  $\frac{5}{8}$  in. drive, 10 sockets for  $\frac{3}{4}$  in. drive, and 15 power extensions. The sockets are designed for turning with regular socket wrench handles and attachments. The Plomb Tool Co., Los Angeles, Cal.

### P86. Clearance Lamp

Ironsides Armored Clearance Lamp is made of heavy gage steel, built to withstand abuse. A solid metal cen-



ter bar projects above the glass, providing further protection from scraping tree branches and damage from pilings and walls. Do-Ray Lamp Co., Chicago.

### P87. Oil Changer

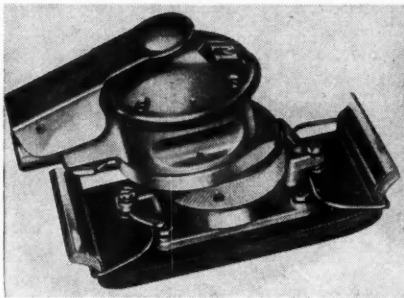
Portable electric unit removes old oil through the dip-stick hole. A motor-driven, gear-type pump, mount-



ed within a steel cabinet with rubber-tired wheels for portability, provides the high-vacuum to effect a quick change of crankcase oil. Graymills Corp., Evanston, Ill.

### P88. Lightweight Sander

The Sand-All, an air-powered sander, features a sanding shoe which



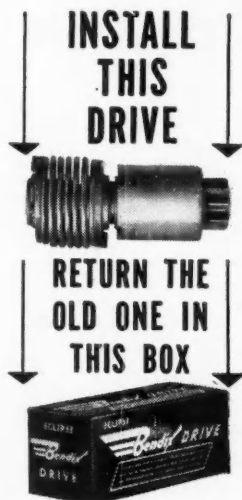
pivots at the center, producing a high-speed sweeping action, and gives a faster sanding job. Fits comfortably in the hand, and only weighs  $4\frac{5}{8}$  lb. Operates on air pressure up to 100 lb. Milwaukee Electric Tool Corp., Milwaukee, Wisc.

### P89. Impact Nut Setter

Portable electric impact nut setter in Universal (110 volt 60 cycle, a.c. or d.c.) and High Cycle (220 volt

(TURN TO NEXT PAGE, PLEASE)

## This Box is Worth Money to You!



THEY'RE WORTH  
**MONEY!**

...And pays your customers  
in greater satisfaction

When you replace with a genuine Bendix\* Drive, you get a double return in money. Your customer pays you cash, of course, for the installation of the finest drive you can sell him. Furthermore, the old one is worth money to you when you return it to your Bendix Drive Central Distributor.

The old Bendix Drives are scrapped—That is your assurance that the Bendix Drive you sell is brand new and thoroughly efficient. *Always* replace with the genuine Bendix Drive. \*TRADE MARK

Genuine Parts  
give Genuine Service

## Bendix Drive

ECLIPSE MACHINE DIVISION of  
ELMIRA, N. Y.

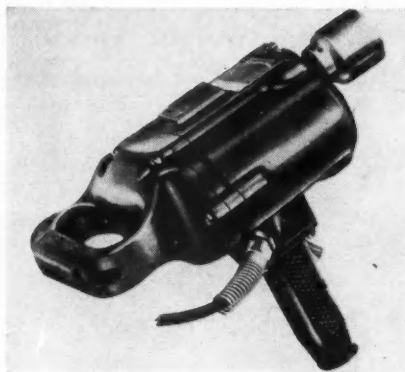


## New Products

(CONTINUED FROM PAGE 145)

180 cycle 3 phase a.c.) models. New models have capacities from  $\frac{3}{8}$  in. to  $\frac{3}{4}$  in. bolt size.

The Speed-O-Matic tightens or removes nuts, bolts, studs and lag screws and can also be used for drilling, tapping, etc. It is torqueless; will not twist in operator's hands when nut becomes tightened. This



means greater ease of operation and greater safety, with less fatigue to operator. It drives nut or bolt 1750 rpm at free speed. At point of resistance, impact unit automatically delivers 3000 impact blows per minute and tightens to a torque of over 200 ft lbs on a  $\frac{3}{4}$  in. bolt. It is instantly reversible for removing bolts or nuts. Tool is  $12\frac{1}{2}$  in. long and weighs  $14\frac{1}{2}$  lb. Speed-O-Matic Sales, Inc., Chicago, Ill.

### P90. Ring Compressor

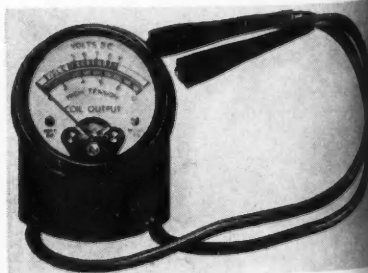
Ring - King "funnel - design" ring compressors in sizes to fit large truck cylinders. New sizes are No. 6, with a range of  $3\frac{11}{16}$  in. to 4 in., and No. 7, with a range of 4 in. to  $4\frac{1}{4}$  in.



Other Lisle compressors are available in sizes from 3 in. to  $3\frac{11}{16}$  in. The Lisle will handle 4-ring pistons on a single operation since rings are automatically compressed to cylinder size as they are pushed through the compressor. Tool is said to reduce ring breakage to a minimum. The Lisle Corp., Clarinda, Iowa.

### P91. Electrical Meters

Coil Output Meter Type BB No. 615—a new meter for all electrical tests on both coil- and magnetoequipped engines. Checks primary and secondary circuits, battery, regu-



lator, generator, primary of coil breaker points, high tension wires to (TURN TO PAGE 148, PLEASE)

If you build or re-build  
**TRUCK BODIES**

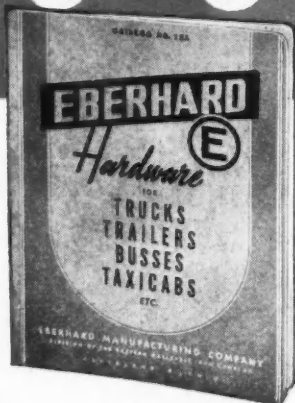
Specify and Profit by

**EberHARDWARE**

**Eberhard**

HINGES  
LOCK HANDLES  
LATCHES  
DOOR IRONS  
DOOR CONTROLS  
SEAT IRONS  
LOCK HANDLES  
SEAT PEDESTALS  
REFRIGERATOR  
LOCKS  
PANEL DOOR  
LOCKS  
VAN BODY  
LOCKS  
SLIDING DOOR  
LOCKS  
LADDER HOLDERS  
ETC.

A WEALTH OF  
**VITAL FACTS**  
IS IN THIS  
**CATALOG..**  
write for yours  
**TODAY!**



"Purpose Tested" Eberhard truck body fittings have an enviable record for dependable service and have established a trustworthy standard of quality.

Whether you are BUILDING or RE-BUILDING truck bodies, the Eberhard line is certain to include one or more items that can be readily and profitably utilized.

Get acquainted with the CIRCLE E line... the predominating choice of body builders everywhere.

**EBERHARD** Long Run  
**TRUCK BODY FITTINGS**



EBERHARD MANUFACTURING CO.  
Division of the Eastern Metallics Iron Company • CLEVELAND, OHIO



RIGHT FOR  
*Style*

RIGHT FOR  
*Service*



MODEL NO. 80-C  
STREAMLINED CLEARANCE  
& MARKER LIGHT

The base of this amazing new light is gently curved to fit the contour of the vehicle body for full flush mounting. The handsome sturdy lens housing comes in brilliant chrome or grey enamel finish. Red or Amber lens available.



MODEL NO. 91  
PROTECTED MARKER LIGHT

This armored beauty cannot be crushed by side-swiping! It's fully protected, yet the power-saving 2 C.P. bulb and scientific Fresnel lens throw maximum light over an arc of 180 degrees. Easily installed flush mounting type. Red or Amber lens available.

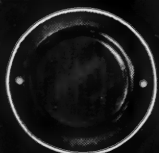
## DIETZ CLEARANCE & MARKER LIGHTS

### NEW DIETZ PRODUCTS!

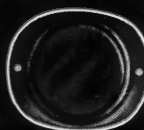
Ingenuity plus a background of skill over a century old! ... that's the story behind these superior new reflectors and lights! Consult your Catalog ... ask your Jobber for full details on these sensational safety products.



No. 323  
REFLECTOR  
FLARE KIT



No. 85  
REFLEX REFLECTOR (ROUND)



No. 86  
REFLEX REFLECTOR (OVAL)



No. 35  
FLEXIBLE MOUNTING  
CLEARANCE & MARKER LIGHT



No. 95  
REFLEX REFLECTOR (ROUND)

No. 43-B  
STOP LIGHT

Here's a pair of lights designed to suit the contours of modern trucks, buses and trailers. But don't let the sleek lines of the DIETZ No. 91 Protected Marker Light fool you! Its smooth appearance masks really rugged armored construction! ... it's a light to last the life of the vehicle! And the Streamlined Clearance and Marker Light No. 80-C features matchless appearance precisely in line with modern automotive trends. For style, for service . . . you're right when you choose DIETZ for your vehicles . . . THE LINE FOR ALL LIGHTS AND SAFETY ACCESSORIES! R. E. Dietz Company, 60 Laight Street, New York 13, N. Y.

TESTED BY THE ELECTRICAL TESTING LABORATORIES  
ICC & STATE APPROVED

OVER A CENTURY OF *Safety* LIGHTING **DIETZ**

## New Products

(CONTINUED FROM PAGE 146)

each plug and coil output from coil to distributor and from distributor to plugs. Indicates dc to 9 volts on upper scale and reads coil output on lower scale. Two permanently attached, flexible leads, fitted with test clips, make all hook-ups easy. Burton-Rogers Co., Cambridge, Mass.

### P92. 15-HP Compressor

T two-stage, 15-hp compressor featuring a sealed crankcase, counter-balanced crankshaft, precision type main and con rod bearings, new type valve plate, three-ring pistons, a muffler-silencer and an oil sight glass.

Unit is a 4-cyl type with 4 1/4-in. bore and 5-in. stroke. Tank is of 200-gal capacity. Unit develops a working pressure of 200 lb.

An improved type tank mounting

distributes weight over wide floor area. Cradle support dampens vibrations. An automatic air release prevents motor starting against overload. An automatic check valve prevents chatter and hammer. The Brunner Mfg. Co., Utica, N. Y.

### P93. Engine Cleaner

Steam Thoro-Purge, used in combination with Hypressure Jenny for radiator and motor block flushing cleaning. Employs heat, chemical action, pressure, and clean water

## SHORT OF TRUCKERS?



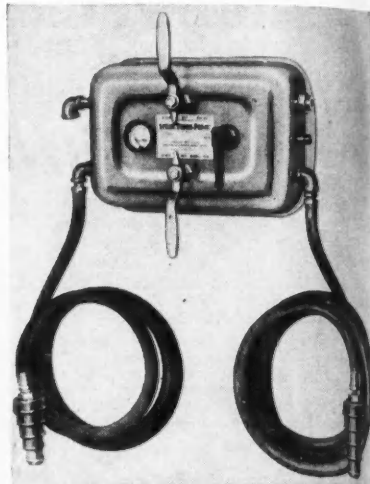
### A CEMCO HYDRAULIC-LIFT TAILGATE AND THE DRIVER MAKE A ONE-MAN CREW

One man can handle heavy drums (as illustrated) or other heavy material with a CEMCO hydraulic operated tailgate to do the lifting. It lowers or raises load between ground and truck bed level—or holds it securely at any point in between. Safety device prevents overloading.

Mounts on any truck or semi-trailer. All mounting accessories included. Total weight of tailgate is only 733 pounds yet it lifts up to one ton.

Sold and serviced by leading truck equipment distributors. Write for the name of the one nearest you.

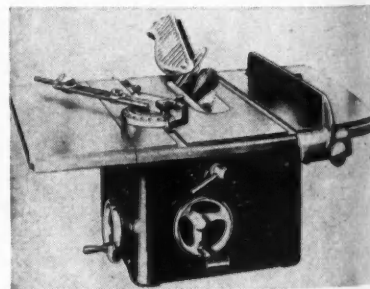
**CEMCO INDUSTRIES, INC.,**  
GALION, OHIO



rinse to back-flush the radiator on the vehicle, remove grease and rust-scale, and at the same time, clean the engine block. Homestead Valve Mfg. Co., Coraopolis, Pa.

### P94. 8-in. Arbor Saw

An 8-in. tilting arbor saw, features an extra large, precision ground table 18 x 25 in., with a removable insert.



The 5/8-in. diameter spindle has sealed-for-life ball bearings and the new and improved rip fence is adaptable to either right or left hand. Saw tilts to a full 45-deg and gives maximum 2 5/8-in cut. A mitre gage with 24-in. extension arm and a special motor mount included. Foster Mfg. Co., Buffalo, N. Y.

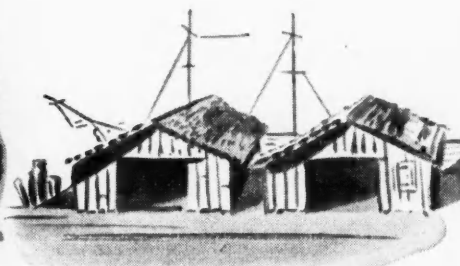
(TURN TO PAGE 186, PLEASE)

PERFORMANCE GOES UP IN SMOKE...

*"You haven't missed  
the boat, MATE*

... IT'S A CAR THAT NEEDS

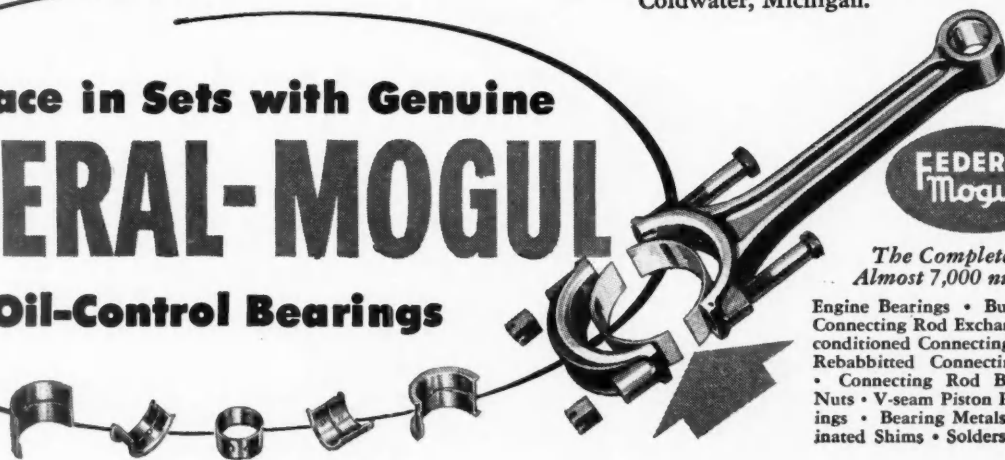
**FEDERAL-MOGUL  
ENGINE BEARINGS"**



### **WORN CONNECTING ROD BEARINGS CAUSE OIL PUMPING**

Don't "miss the boat" when you have an engine opened up to correct oil pumping. **ALWAYS CHECK THE BEARINGS!** Worn bearings let excess oil reach the combustion chambers where it burns to carbon on pistons, piston rings, valves and spark plugs. The best of new rings don't do their job right if worn bearings are left in the engine! Avoid comebacks on smoky exhaust, high oil consumption and sluggish performance. It will be smooth sailing when you install Genuine Federal-Mogul Oil-Control Bearings to restore power, pep, economy! **FEDERAL-MOGUL SERVICE**, Division of Federal-Mogul Corporation, Coldwater, Michigan.

Replace in Sets with Genuine  
**FEDERAL-MOGUL**  
**Oil-Control Bearings**



**FEDERAL  
Mogul**

*The Complete Line—  
Almost 7,000 numbers:*

Engine Bearings • Bushings •  
Connecting Rod Exchange • Re-  
conditioned Connecting Rods •  
Rebabbitted Connecting Rods  
• Connecting Rod Bolts and  
Nuts • V-seam Piston Pin Bush-  
ings • Bearing Metals • Lam-  
inated Shims • Solders.



## Ford Chassis

(CONTINUED FROM PAGE 76)

Forward control steering is the heavy-duty fore-and-aft truck type of 20.4 to 1 ratio. Turning radius of the 104-inch wheelbase chassis is 18½ ft and for the 122-in. wheelbase unit, 21 ft. Both units have steering column gear shift and a heavy duty 3-speed transmission as standard equipment.

Standard equipment tires are 7.00-16, 6-ply rating truck type. Optional tires are 7.50-16, 8-ply rating on standard wheels; 7.50-17, 8-ply rating on optional wheels.

Direct, double-acting shock absorbers of telescopic design with rubber insulated attachments are standard equipment, front and rear.

Hotchkiss straight-line drive is used on both chassis.

END

(Please resume your reading on P. 77)

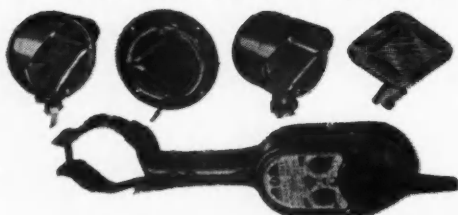


Truck  
Drivers  
Aren't  
Minstrels

But they all sing the praises of--

# Signal-Stat

DIRECTIONAL SIGNALS  
with the only  
BURN-OUT PROOF SWITCH\*



\*the only switch that can be used with or without flashers.

Also Fuse-In-Line Receptacles—Stoplite Pilots—Emergency Brake Pilots

And there's good reason, too!... No more inconvenience of outstretched hands that could mean anything.

Now SIGNAL-STAT provides:

Obvious signals of intention to turn, guaranteed by the only Burn-Out Proof Switch that can be used with or without flashers. Available in SIGNAL-STAT sets or as replacements for other switches.

Lamps that are superior for durability, visibility, ease of installation and multiple-position mountings without extra parts.

Sold by the best jobbers and installed by all vehicle owners interested in promoting safety, avoiding accidents and reducing insurance premiums.

**Signal-Stat CORPORATION**

1430 Herkimer St., Brooklyn 33, N. Y.

## The Overload

(CONTINUED FROM PAGE 39)

suspicion that the results are not reliable. So it is well to bring out into the open rumors concerning the Pilot Test recently completed and described in the September issue.

\* \* \*

These rumors were to the effect that the Pilot Test vehicles had been afflicted with so much vapor lock because the tests were run during a severe summer hot spell that the results would not be typical of normal operating conditions; that the results could not be accepted at face value but would have to be estimated, and that on this account some of the tests should be repeated to eliminate all possibility of controversy.

\* \* \*

It would be truly unfortunate if a study as basic as the Pilot Test were to become suspect. If the validity of basic findings should come under a cloud of doubt, all subsequent projections, conclusions and recommendations would become controversial. This would defeat the object of the studies, which is to provide impartial, authentic, scientific data to eliminate controversy in highway building, planning and use. Therefore, to reassure itself, its readers and all interested parties, the Commercial Car Journal sought enlightenment from the Highway Research Board. H. S. Fairbank, chairman of Project Committee No. 5, Economics of Motor Vehicle Size and Weight, responded as follows:

\* \* \*

"There are absolutely no grounds for the type of rumors that we have been hearing. In the first place, only three of the seven test vehicles experienced vapor lock, and one of these could operate at all times on the left gasoline tank without vapor lock. The two other vehicles were materially affected only for the heaviest loading, and then only when operating on U. S. Routes 11 and 30. Since at least one test run in each direction was obtained without vapor lock for each of the two vehicles carrying the heavy load on U. S. Routes 11 and 30, it should be possible to evaluate the effect of vapor lock where it was a factor. In fact, a preliminary analysis of the results obtained for one of the two vehicles indicates that the effect of vapor lock on performance can be easily evaluated."

\* \* \*

Since the vapor lock factor can be isolated and the results freed of its taint, the reliability of the basic Pilot Test data is not to be doubted.

END

(Please resume your reading on P. 40)